



OWNER/OPERATOR'S MANUAL & ILLUSTRATED PARTS LIST

MODEL:

73-70890 TILLER TL348



WARNING: If incorrectly used this machine can cause severe injury. Those who use and maintain this machine should be trained in its proper use, warned of its dangers and should read the entire manual before attempting to set up, operate, adjust or service the machine.



09-202A REV A

**CALIFORNIA
Proposition 65 Warning**

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.



WARNING

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

**Californie Proposition 65
Avertissement**

Les échappements des moteurs diesel et certains de leurs composés sont reconnus par l'Etat de Californie pour être cancérigènes, provoquer des défauts congénitaux et d'autres dangers en matière de reproduction.



AVERTISSEMENT

L'émission du moteur de ce matériel contient des produits chimiques que l'Etat de Californie considère être cancérigènes, provoquer des défauts congénitaux et d'autres dangers en matière de reproduction.

**California Advertencia
de la Proposicion 65**

El estado de California hace saber que los gases de escape de los motores diesel y algunos de sus componentes producen cáncer, defectos de nacimiento y otros daños en el proceso de reproducción humana.



ADVERTENCIA

El estado de California hace saber que los gases de escape de este producto contienen productos químicos que producen cáncer, defectos de nacimiento y otros daños en el proceso de reproducción humana.

**CALIFORNIA
Proposition 65 Warning**

Battery posts, terminals, wiring insulation, and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.
WASH HANDS AFTER HANDLING.

IMPORTANT MESSAGE

Thank you for purchasing this Jacobsen product. You have purchased a world class product, one of the best designed and built anywhere.

This product comes with an Owner/Operator's Manual. The useful life and good service you receive from this product depends to a large extent on how well you read and understand this manual. Treat this product properly and adjust it as instructed, and it will give you many years of reliable service.

See a Jacobsen dealer for any service or parts needed. Jacobsen service ensures that you continue to receive the best results possible from Jacobsen products. You can trust Jacobsen replacement parts because they are manufactured with the same high precision and quality as the original parts.

Jacobsen designs and builds its equipment to serve many years in a safe and productive manner. For longest life, use this product only as directed in the manual, keep it in good repair and follow safety warnings and instructions. You'll always be glad you did.

Jacobsen, a Textron Company
One Bob Cat Lane
Johnson Creek, WI 53038-0469

TABLE OF CONTENTS	FIGURES	PAGE
INTRODUCTION		2
SAFETY		3, 4
INSTALLATION		5
OPERATION		6
SERVICE		7, 8
PARTS SECTION		9
FRAME & ROTOR PARTS	FIGURE 1	10, 11
DRIVE PARTS	FIGURE 2	12, 13
GEARBOX PARTS (SN 1001 - 1126)	FIGURE 3	14, 15
GEARBOX PARTS (SN 1127 - 1282)	FIGURE 4	16, 17
GEARBOX PARTS (SN 1283 - 1388)	FIGURE 5	18, 19
GEARBOX PARTS (SN 1389 -)	FIGURE 6	20, 21
TILLER STAND	FIGURE 7	22, 23

DESCRIPTION

The TL348 front mounted tiller has a 48 inch working width and a tilling depth of up to 6 inches in loose soil. Power is delivered by the PTO belt drive to a gearbox. The rotor is chain driven, a solid 1-1/2 inch steel shaft with 24 cutting tines. The tiller is designed to work when the power unit is driven in reverse. This allows good control and visibility. Tilling provides an ideal seed bed for garden or turf.



SPECIFICATIONS

Working Width	48"
Working Depth	6" Max.
Overall Height	26"
Overall Width	51"
Overall Length	38"
Tines	24 Replaceable, Hardened
Drive	Chain drive from gearbox
Operation	Tractor in reverse motion
Bearings	Greaseable
Weight	290 lbs.

NOTICE !!!

Unauthorized modifications may present **extreme** safety hazards to operators and bystanders and could also result in product damage.

Jacobsen, a Textron Company strongly warns against, rejects and disclaims any modifications, add-on accessories or product alterations that are not designed, developed, tested and approved by Jacobsen Engineering Department. Any Jacobsen product that is altered, modified or changed in any manner not specifically authorized after original manufacture—including the addition of “after-market” accessories or component parts not specifically approved by Jacobsen—will result in the Jacobsen Warranty being voided.

Any and all liability for personal injury and/or property damage caused by any unauthorized modifications, add-on accessories or products not approved by Jacobsen will be considered the responsibility of the individual(s) or company designing and/or making such changes. Jacobsen will vigorously pursue full indemnification and costs from any party responsible for such unauthorized post-manufacture modifications and/or accessories should personal injury and/or property damage result.



This symbol means:
ATTENTION!
BECOME ALERT!

Your safety and the safety of others is involved.

Signal word definitions:

The signal words below are used to identify levels of hazard seriousness. These words appear in this manual and on the safety labels attached to Jacobsen machines. For your safety and the safety of others, read and follow the information given with these signal words and/or the symbol shown above.

DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, **WILL** result in death or serious injury.

WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, **COULD** result in death or serious injury.

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, **MAY** result in minor or moderate injury. It may also be used to alert against unsafe practices or property damage.

CAUTION

CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, **MAY** result in property damage



MODEL NUMBER: This number appears on sales literature, technical manuals and price lists.

SERIAL NUMBER: This number appears only on your mower. It contains the model number followed consecutively by the serial number. Use this number when ordering parts or seeking warranty information.

GENERAL SAFETY

1. Read and understand the Owner's Manual before attempting to operate this machine.
2. Operate all controls from the operator's seat. **NO RIDERS.**
3. Keep all shields in place and safety switches adjusted properly.
4. Do not leave equipment unattended. STOP the engine and remove the key.
5. Do not allow minors or the inexperienced to operate this machine.
6. Keep people and pets a safe distance away from machine using power driven attachments. Injury could result from flying debris.

OPERATING SAFETY

1. **STOP ENGINE** to make repairs or adjustments. Do not attempt to work on unit or attachments with the engine running.
2. Before leaving the operator's seat:
 - Disengage PTO drive.
 - Set Parking brake.
 - Stop Engine.



KEEP HANDS AND FEET AWAY FROM ROTATING TINES.



BE ALERT FOR OBJECTS IN THE PATH OF THE TILLER. REMOVE STONES, STICKS AND DEBRIS WHICH COULD CAUSE DAMAGE TO THE ATTACHMENT.

MOUNTING INSTRUCTIONS

1. This tiller is designed to fit all Steiner power units.
2. Install drive belt over left hitch arm and move tractor into position until the quick hitch can be latched.
3. Install drive belt. Use the correct drive belt for the power unit.
4. A support leg is provided to support the tiller during mounting and unmounting. Raise the leg to the upper position and secure with the safety snap pin before tilling.
5. Use "FLOAT" position while tilling and adjust skid shoes for tilling depth.

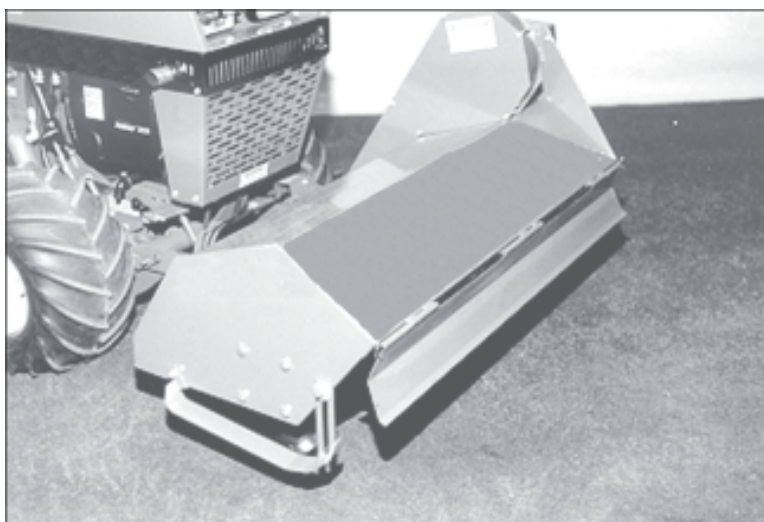


Photo 1 - Mounted Tiller



Photo 2 - Tilling Seed Bed

OPERATING PRECAUTIONS



OBSERVE ALL SAFETY DECALS.

KEEP ALL SHIELDS IN PLACE.

BEFORE LEAVING TRACTOR, MOVE FORWARD - REVERSE CONTROL TO NEUTRAL POSITION, DISENGAGE PTO, SET PARKING BRAKE AND STOP ENGINE.

OPERATING INSTRUCTIONS

1. Mount tiller according to instructions in Section 3.
2. Raise tiller to transport position.
3. Shift transaxle(s) to "LOW" (1) range.
4. Engage PTO and set engine speed to full throttle. (Reduce to one-half throttle for hard or stony soils.)
5. Lower tiller carefully and place lift in "FLOAT" position.
6. Move tractor slowly in reverse travel.
7. Tiller will operate satisfactorily to a depth of approximately 6 inches in loose soil. Loose soil is defined as fresh plowed soil. The tiller works best as a seed bed fitting tool, not a deep tillage tool. (See Photo 2)
8. Adjust the skid shoes for tilling depth. In hard or stony soils it is suggested to first till to a depth of approximately 2 inches, and increase the depth approximately 2 inches for subsequent passes on the previously tilled soil.

⚠ CAUTION

BE ALERT FOR OBJECTS IN THE PATH OF THE TILLER. REMOVE LARGE STONES (OVER 2" IN DIAMETER) FROM THE PATH OF THE TILLER. LARGE STONES OR OTHER OBJECTS MAY CAUSE DAMAGE TO THE TILLER

MAINTENANCE

DAILY (10 HOUR) MAINTENANCE:

1. Check for signs of loose bolts. Replace or tighten.
2. Check oil level in gearbox. Use #90 gear oil - 1/2 full.
3. Remove caplugs and check chains. Lube with roller chain lube or #30 oil. Chain should not run "dry".

ANNUAL (100 HOUR) MAINTENANCE:

1. In addition to daily maintenance, grease all bearings.
2. Remove chain shields. Inspect the chains and sprockets for wear. Lube chain with chain lube or #30 oil. (See Photos 3 & 4)
3. Storage: Clean entire machine.

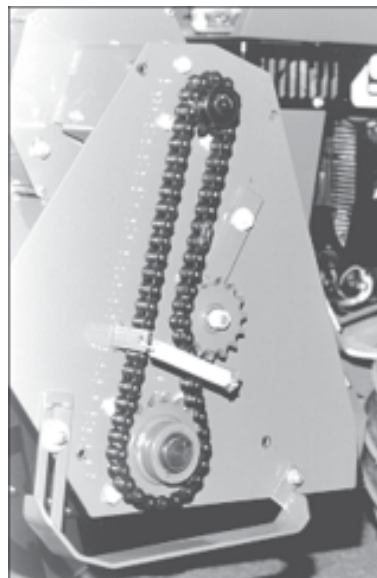


Photo 3 - Drive Chain



Photo 4 - Drive Chain

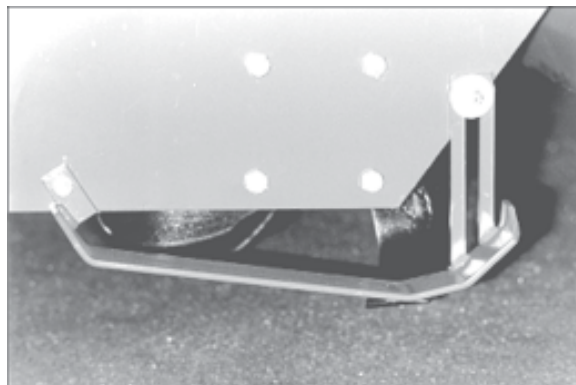


Photo 5 - Tiller Skid Shoe

ADJUSTMENTS

Skid Shoes: Loosen the two mounting bolts and slide the shoe up or down as needed. Tighten mounting bolts. (See Photo 5)

Drive chain adjustment: The drive chains do not require any adjustment. Spring loaded idlers take up the slack. Replace chains and/or sprockets as normal wear occurs. (See Photo 3 & 4)

Tine replacement: When tines become worn to the extent that they do not dig properly, they should be replaced. Replace with tines at the exact location they were removed. The location of right and left tines is critical for smooth operation. (See Photo 6)



Photo 6 - Tiller Tines

PARTS SECTION

FIGURE 1

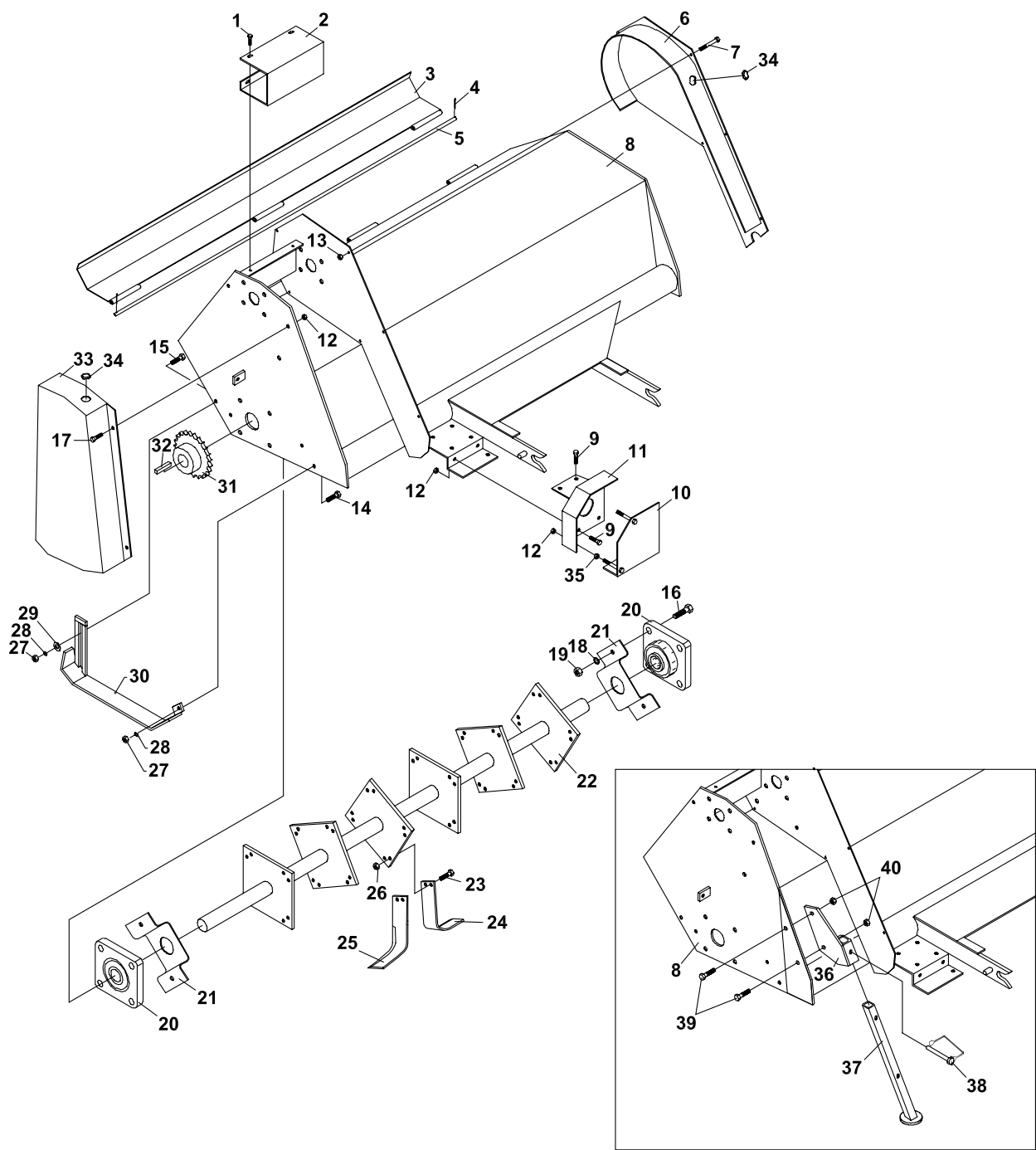


FIGURE 1

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1-1	99-C0504	BOLT-5/16 X 1/2 SLF TAP	4	1-39	64139-21	BLT-WLF 3/8-16X3/4	2
1-2	60-456	SHIELD-SHAFT	1	1-40	64141-4	NUT-WLF 3/8-16	2
1-3	60-011.7	SHIELD-LEVELING	1	*	00-092	DECAL-DANGER SYMBOL	1
1-4	64140-1	COTTER PIN-1/8X1	2	*	00-093	DECAL-READ OP MAN	1
1-5	42-010.7	HINGE ROD	1	*	00-025	DECAL-KEEP HANDS AWAY	1
1-6	60-022.7	SHIELD-CHAIN	1				
1-7	90-0424	BOLT-1/4 X 3	7				
1-8	62-045.7	MAIN FRAME	1				
1-9	64139-08	BOLT-5/16-18X3/4 WLF	4				
1-10	60-455.7	SHIELD-DRIVE PULLEY	1				
1-11	64-487.7	MNT-DRIVE PULLEY SHLD	1				
1-12	64141-6	NUT, 5/16-18	8				
1-13	64151-17	LOCKNUT, HEX	7				
1-14	64123-50	BOLT-HEX 3/8-16X1	2				
1-15	64123-16	BLT-HEX 3/8-16X1-1/4	2				
1-16	64123-117	BOLT-HEX 1/2-13X1-1/2	8				
1-17	64139-08	BOLT-5/16-18X3/4	4				
1-18	64006-05	LOCKWSHR-HELICAL 1/2	8				
1-19	64025-09	HEX, NUT 1/2-13	8				
1-20	55-FB22024	BEARING	2				
1-21	60-013.7	SHIELD-BEARING	2				
1-22	80-011.7	ROTOR	1				
1-23	90-0710	BOLT-7/16 X 1-1/4	48				
1-24	79-011.7	TINE-LEFT	12				
1-25	79-010.7	TINE-RIGHT	12				
1-26	64229-04	S LOCKNUT-NYLN 7/16-14	48				
1-27	64025-05	NUT-3/8-16 HEX	4				
1-28	64006-03	LOCKWASHER	4				
1-29	99-B10	FLATWASHER	2				
1-30	79-012.7	SKID SHOE-RIGHT	1				
	79-013.7	SKID SHOE-LEFT	1				
1-31	83-602024	SPROCKET-#60 20 TEETH	1				
1-32	64164-26	KEY-3/8x3/8x1-1/2 SQ	1				
1-33	4138312.7	SHIELD-DRIVE END	1				
1-34	06-010	CAP PLUG-1"	2				
1-35	64229-02	LOCKNUT-NYLON 5/16-18	2				
1-36	64-940.7	SUPPORT STAND MOUNT	1				
	(SN 1421 -)						
1-37	64-941.7	SUPPORT STAND LEG	1				
	(SN 1421 -)						
1-38	03-018	PIN-SAFETY SNAP	1				
	(SN 1421 -)						

* NOT ILLUSTRATED

FIGURE 2

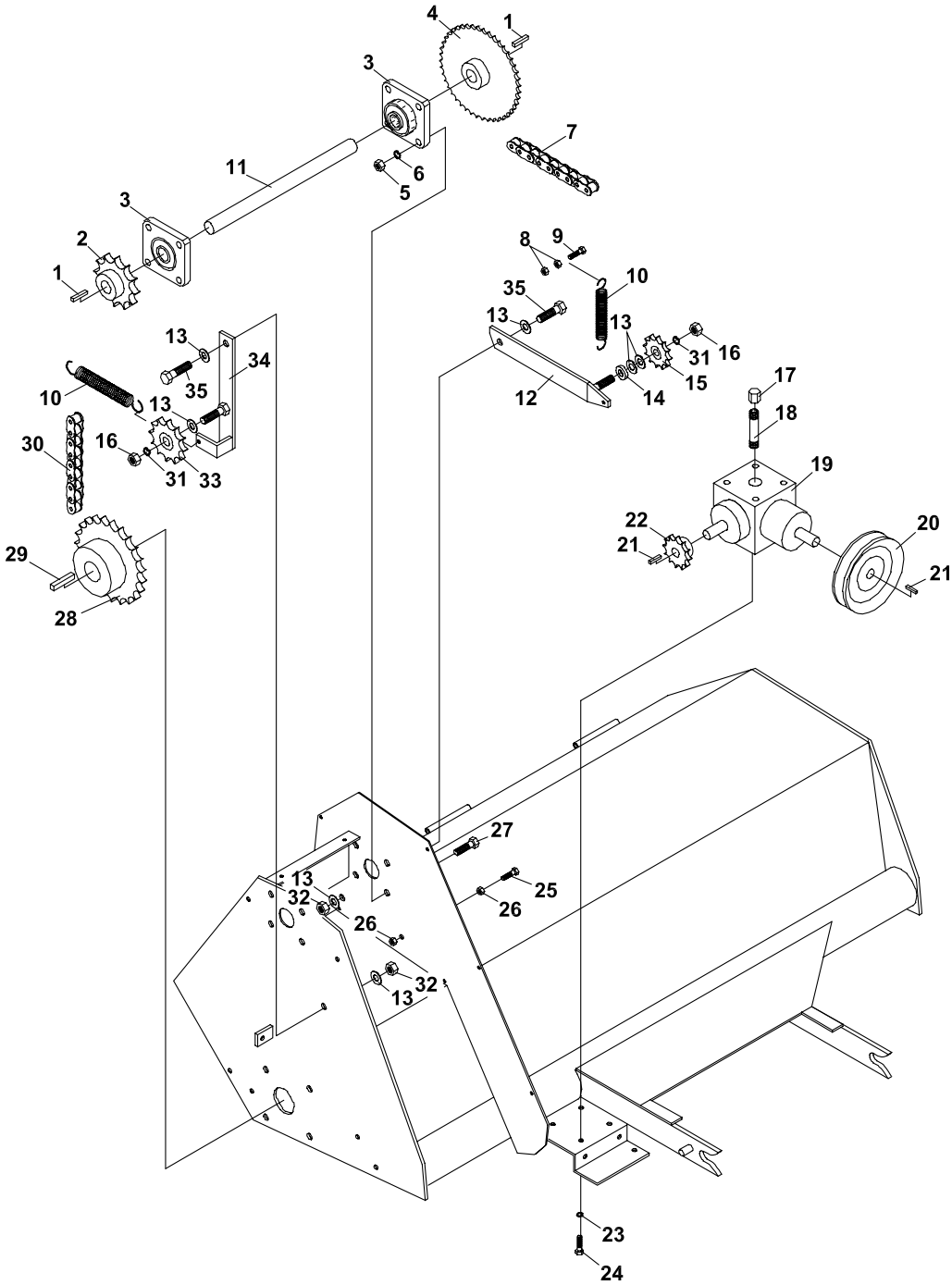
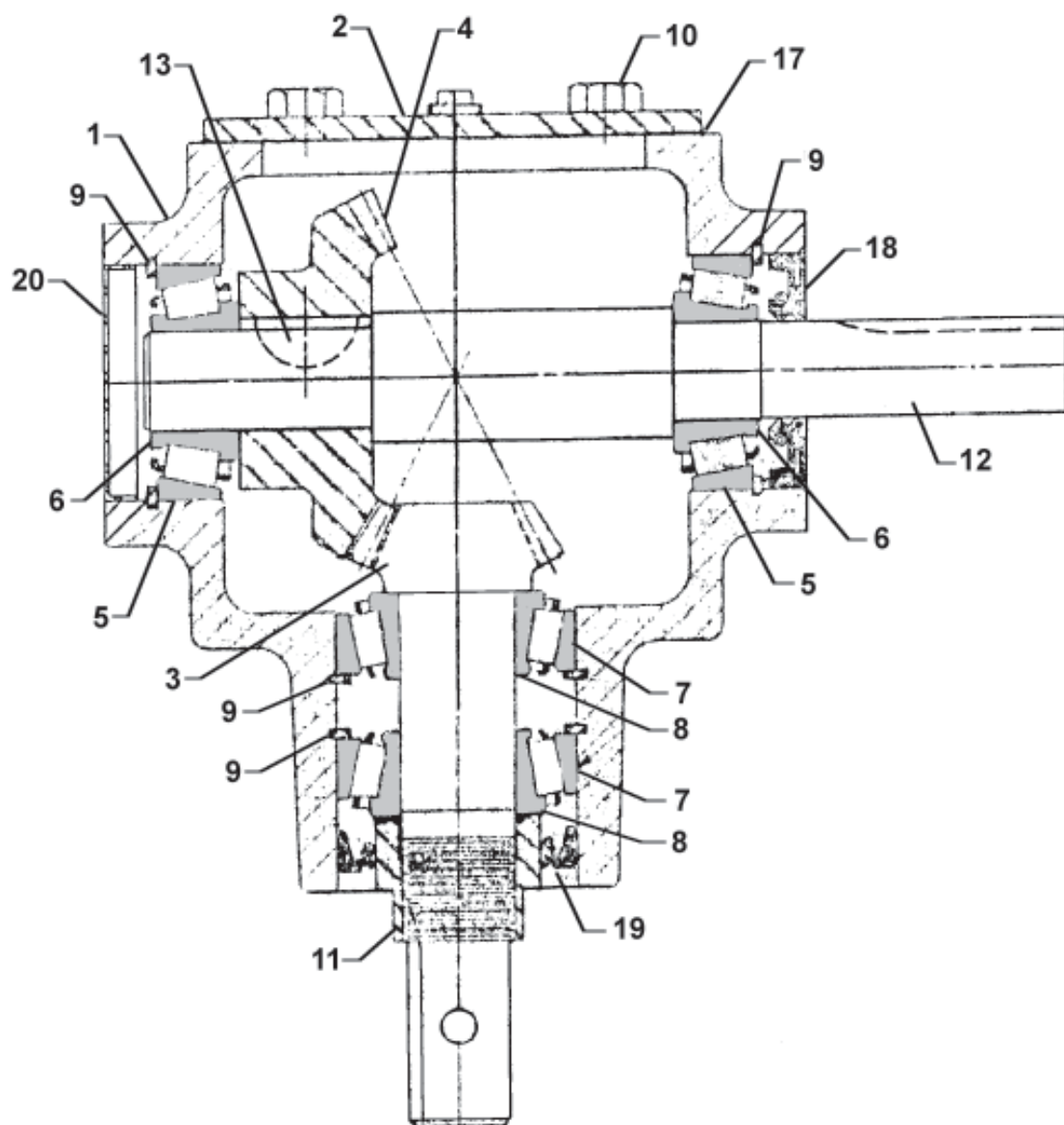


FIGURE 2

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
2-1	64164-10	1/4X1/4X1-1/4 MACH KEY	2	2-31	64006-05	LOCKWSHR-HELICAL 1/2	2
2-2	83-H601016	SPROCKET-#60 - 10 TEETH	1	2-32	64229-05	LOCKNUT, 1/2-13 NYLON	2
2-3	55-FB22016	BEARING	2	2-33	83-6015E08	IDLER SPROCKET-#60	1
2-4	83-504516	SPROCKET-#50 - 45 TEETH	1	2-34	40-018.7	IDLER ARM	1
2-5	92-07	NUT-7/16	8	2-35	64123-39	BOLT-HEX 1/2-13X1-1/4	2
2-6	64006-06	LOCKWASHER	8				
2-7	56-RC50-64	ROLLER CHAIN-63-5/8"	1				
	81-053	CONNECTING LINK	1				
2-8	64141-6	NUT, 5/16-18	2				
2-9	99-K02	FLANGE BOLT-5/16 X 1	1				
2-10	41-010	SPRING-5"	2				
2-11	80-020	JACKSHAFT	1				
2-12	40-017.7	IDLER ARM	1				
2-13	64163-67	WASHER-.516X1X12GA	7				
2-14	99-B12	SPACER-1/4" THICK	1				
2-15	83-5013E08	IDLER SPROCKET-#50	1				
2-16	64025-09	HEX, NUT 1/2-13	2				
2-17	24-030.7	PIPE CAP-3/8 VENTED	1				
	(SN 1001 - 1126)						
	24-042.7	PIPE CAP-1/4 VENTED	1				
	(SN 1127 -)						
2-18	29-022	PIPE NIPPLE-3/8 X 2-1/2	1				
	(SN 1001 - 1126)						
	29-109	PIPE NIPPLE-1/4 X 2-1/2	1				
	(SN 1127 -)						
2-19	87-013	GEARBOX	1				
	(SN 1001 - 1126)						
	87-160	GEARBOX	1				
	(SN 1127 - 1388)						
	87-209	GEARBOX	1				
	(SN 1389 -)						
2-20	82-077	GEARBOX-PULLEY	1				
2-21	64164-11	KEY-3/16X3/16X1-1/4 SQ	2				
2-22	83-H501012	SPROCKET-#50 - 10 TEETH	1				
2-23	64006-02	LOCKWASHER-5/16	4				
2-24	64123-68	BOLT-HEX 5/16-18X1	4				
2-25	64123-89	BOLT-HEX 1/4-20X3/4	1				
2-26	64025-01	NUT-1/4-20 HEX	2				
2-27	90-0710	BOLT-7/16 X 1-1/4	8				
2-28	83-602024	SPROCKET-#60 - 20 TEETH	1				
2-29	64164-26	KEY-3/8x3/8x1-1/2 SQ	1				
2-30	56-RC60-44	ROLLER CHAIN-43-1/2"	1				
	81-024	CONNECTOR LINK-#60	1				

FIGURE 3



TILLER

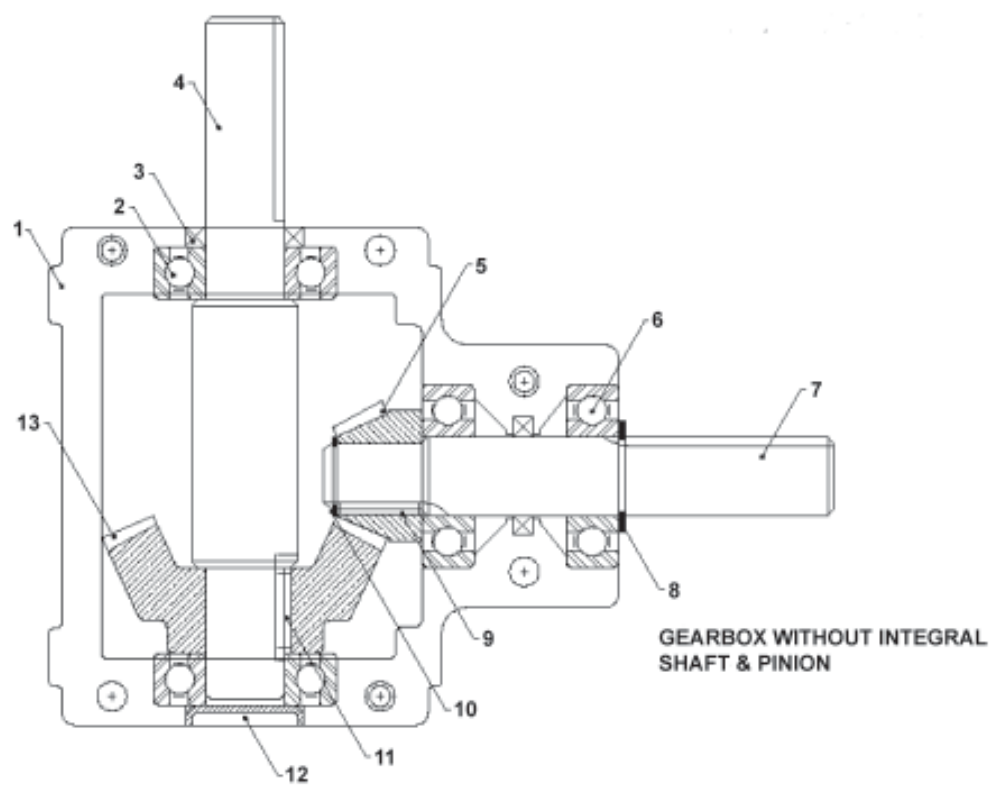
GEARBOX PARTS (SN 1001 - 1126)

FIGURE 3

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
3-1	87-A160-2	HOUSING	1				
3-2	87-A161	COVER	1				
3-3	87-B219	PINION SHAFT-14 TEETH	1				
3-4	87-B220	BEVEL GEAR-28 TEETH	1				
3-5	87-C143	BEARING CUP	2				
3-6	87-C144	BEARING CONE	2				
3-7	87-C171	BEARING CUP	2				
3-8	87-C172	BEARING CONE	2				
3-9	87-D259	SNAP RING	4				
3-10	87-D332	CAPSCREW-5/16 X 5/8	4				
3-11	87-D277	STAKE NUT	1				
3-12	87-E4210	SHAFT-OUTPUT	1				
3-13	87-J95	KEY-#9 WOODRUFF-HARD	1				
*	87-K38	PLUG-3/8 NPT	2				
3-17	87-K246	GASKET-COVER	1				
3-18	87-K247	SEAL	1				
3-19	87-K260	SEAL-INPUT	1				
3-20	87-K261	CAP	1				
	87-013	GEARBOX-COMPLETE	1				

* NOT ILLUSTRATED

FIGURE 4



TILLER

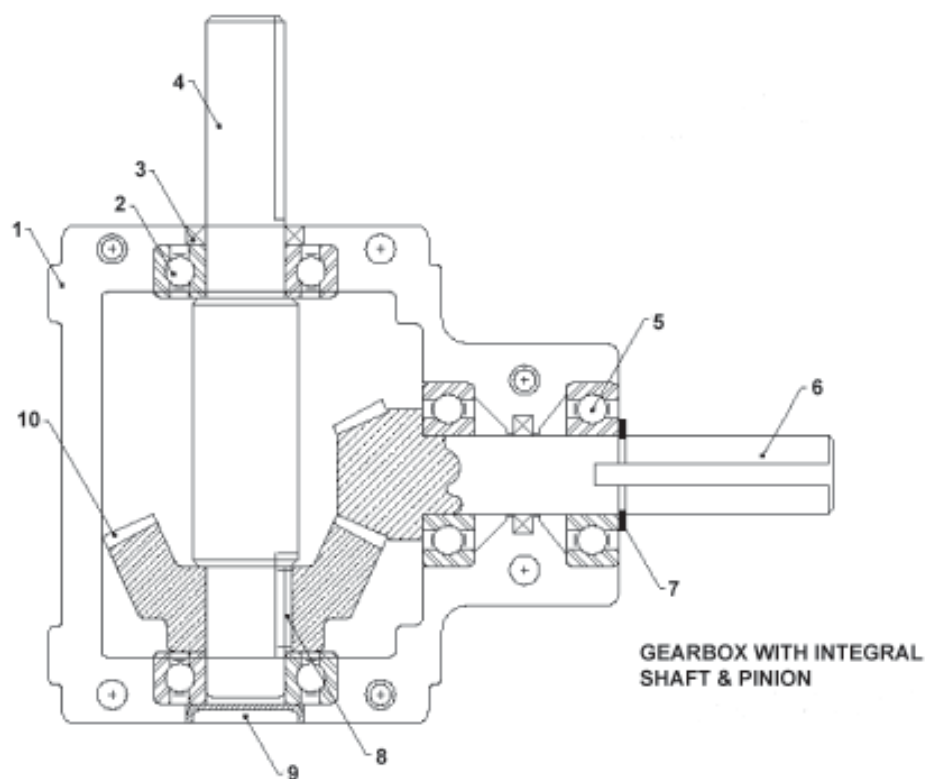
GEARBOX PARTS (SN 1127 - 1282)

FIGURE 4

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
4-1	87-CM002824	HOUSING HALF	1				
	87-CM001453	HOUSING HALF	1				
4-2	87-CM153411	BALL BEARING	3				
4-3	87-CM301432	SEAL	2				
4-4	87-CM210484	SHAFT	1				
4-5	87-CM102111	GEAR	1				
4-6	87-CM151282	BALL BEARING	1				
4-7	87-CM210559	SHAFT	1				
4-8	87-CM620054	RETAINING RING	1				
4-9	87-CM600668	KEY	1				
4-10	87-CM620351	RETAINING RING	1				
4-11	87-CM600106	KEY	1				
4-12	87-CM640045	EXPANSION PLUG	1				
4-13	87-CM102129	GEAR	1				
*	87-CM411173	CAP SCREW	6				
*	87-CM410324	LOCKWASHER	6				
*	87-CM410001	PIPE PLUG	2				
*	29-076	PIPE PLUG-1/4"	1				
*	87-160	GEARBOX	1				

* NOT ILLUSTRATED

FIGURE 5



TILLER

GEARBOX PARTS (SN 1283 - 1388)

FIGURE 5

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
5-1	87-CM002824	HOUSING HALF	1				
	87-CM001453	HOUSING HALF	1				
5-2	87-CM153411	BALL BEARING	3				
5-3	87-CM301432	SEAL	2				
5-4	87-CM210484	SHAFT	1				
5-5	87-CM151282	BALL BEARING	1				
5-6	87-CM107201	INTEGRAL SHFT&PINION	1				
5-7	87-CM620054	RETAINING RING	1				
5-8	87-CM600106	KEY	1				
5-9	87-CM640045	EXPANSION PLUG	1				
5-10	87-CM107169	GEAR	1				
*	87-CM411173	CAP SCREW	6				
*	87-CM410324	LOCKWASHER	6				
*	87-CM410001	PIPE PLUG	2				
*	29-076	PIPE PLUG-1/4"	1				
*	87-160	GEARBOX	1				

*NOT ILLUSTRATED

FIGURE 6

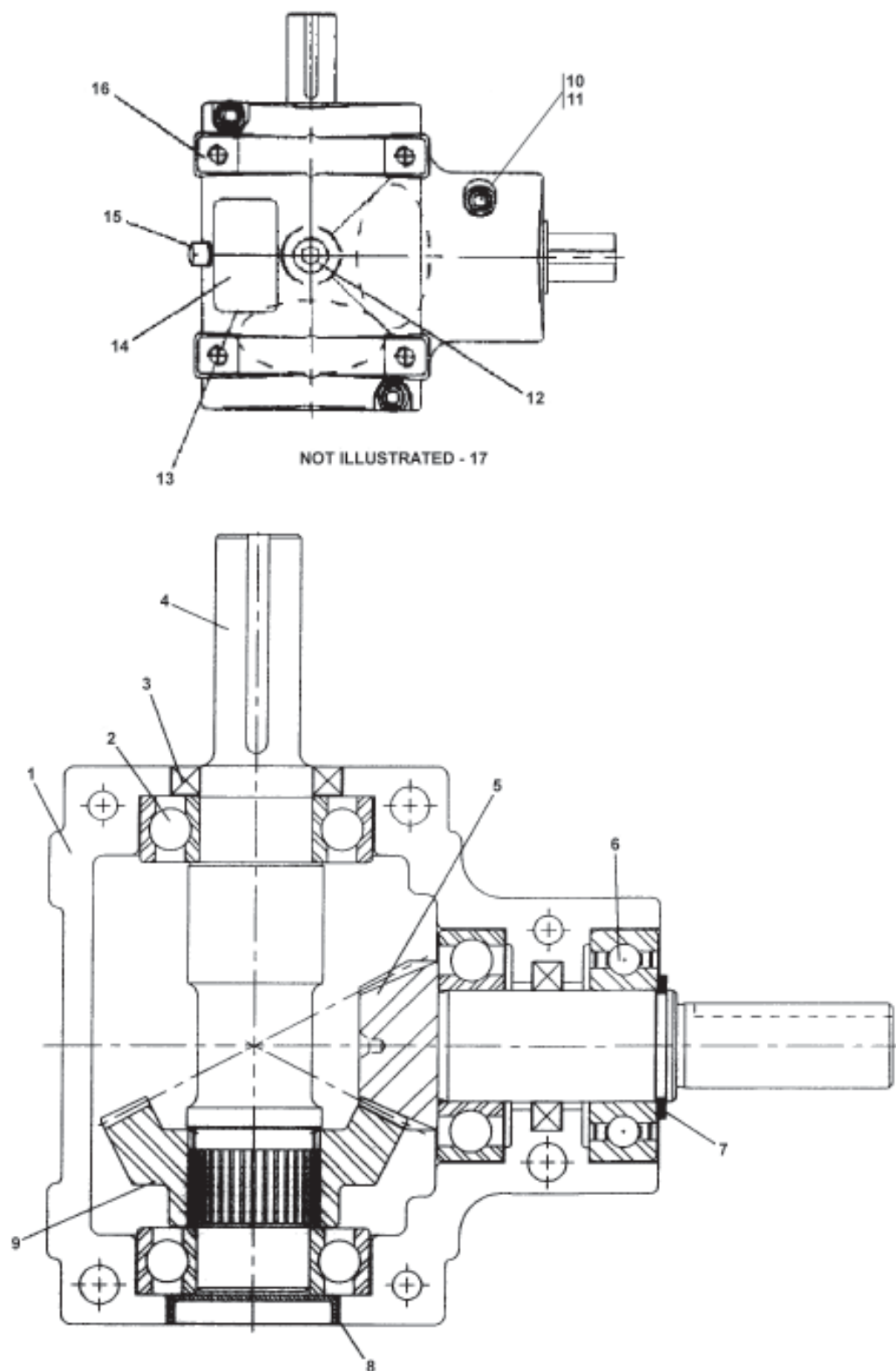
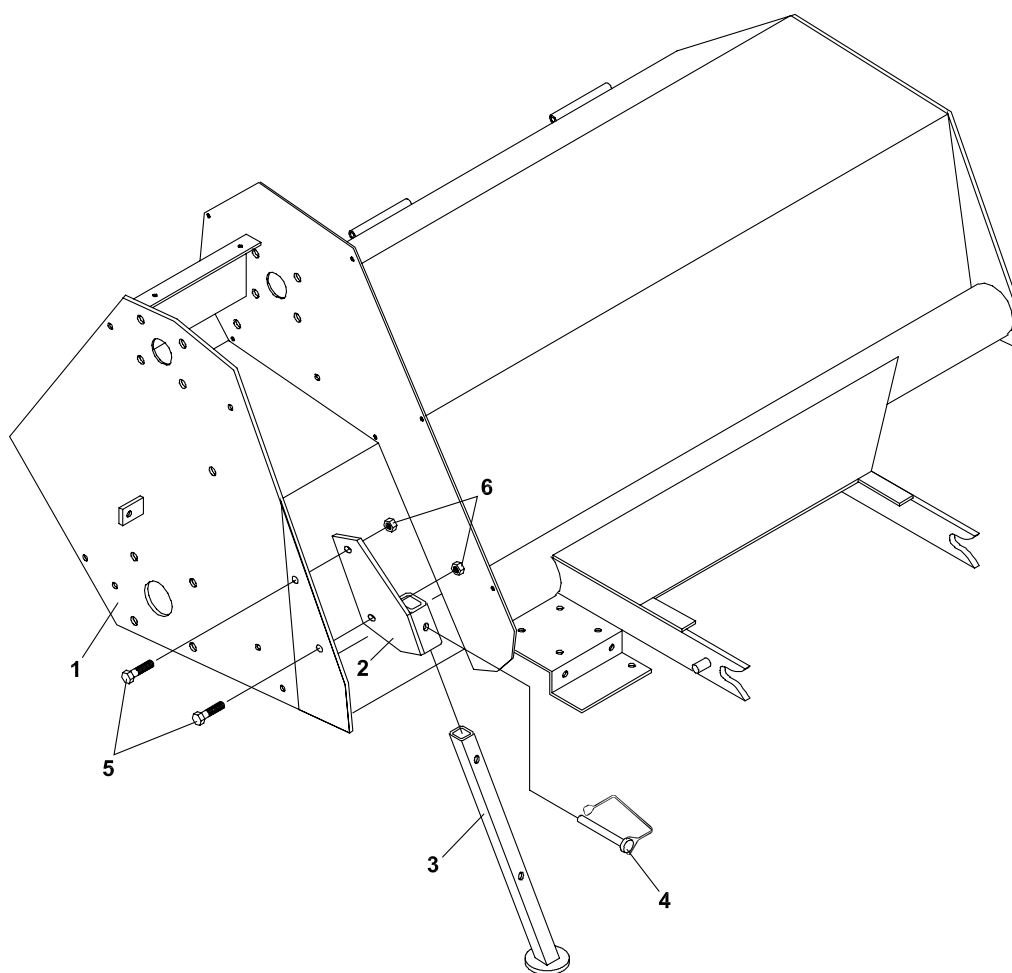


FIGURE 6

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
	87-209	GEARBOX					
6-1	87-CM003582	HOUSING HALF	1				
6-2	87-CM153437	BALL BEARING	3				
6-3	87-CM301374	SEAL	2				
6-4	87-CM226423	THRU SHAFT	1				
6-5	87-CM108068	INTEGRAL SHFT&PINION	1				
6-6	87-CM153429	BALL BEARING	1				
6-7	87-CM620013	RETAINING RING	1				
6-8	87-CM640110	EXPANSION PLUG	1				
6-9	87-CM108514	GEAR RH	1				
6-10	87-CM412320	CAP SCREW	6				
6-11	87-CM410506	LOCKWASHER	6				
6-12	87-CM410001	PIPE PLUG-SOLID	2				
6-13	87-CM800573	I.D. TAG	1				
6-14	87-CM802876	I.D. TAG COVER	1				
6-15	87-CM410068	PIPE PLUG-SOLID	1				
6-16	87-CM003756	HOUSING HALF	1				
6-17 *	87-CM800326	GEAR LUBE (OZ.)	5				

*NOT ILLUSTRATED

FIGURE 7



TILLER

TILLER STAND

FIGURE 7

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
7-1	62-045.7	MAIN FRAME	1				
7-2	64-940.7	SUPPORT STAND MOUNT	1				
7-3	64-941.7	SUPPORT STAND LEG W/A	1				
7-4	03-018	PIN-SAFETY SNAP	1				
7-5	64139-21	BLT-WLF 3/8-16X3/4	2				
7-6	64141-4	NUT-WLF 3/8-16	2				

World Class Quality, Performance And Support



Equipment from Jacobsen, a Textron company, is built to exacting standards ensured by ISO 9001 and ISO 14001 registration at all our manufacturing locations.

A worldwide dealer network and factory-trained technicians backed by Textron Parts Xpress provide reliable, high-quality product support.



BOB-CAT BROUWER BUNTON CUSHMAN RYAN STEINER