

REAR TINE TILLERS

AND ATTACHMENT

413RT

Mfg. No. Description

1692876 413RT, 3.5HP Rear Tine Tiller

516RT

Mfg. No. Description

1692877 516RT, 5HP Rear Tine Tiller

ATTACHMENT

Mfg. No. Description

1692878 Hiller/Furrower (*Ref. Info. Only*)

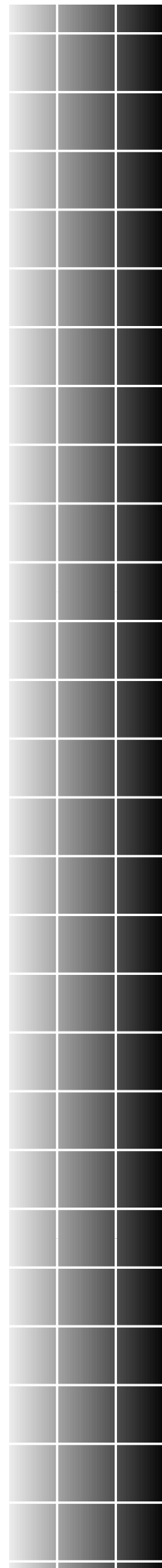




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This Manual Covers The Following Products:

413RT TILLER

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516RT TILLER

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REAR TINE TILLERS

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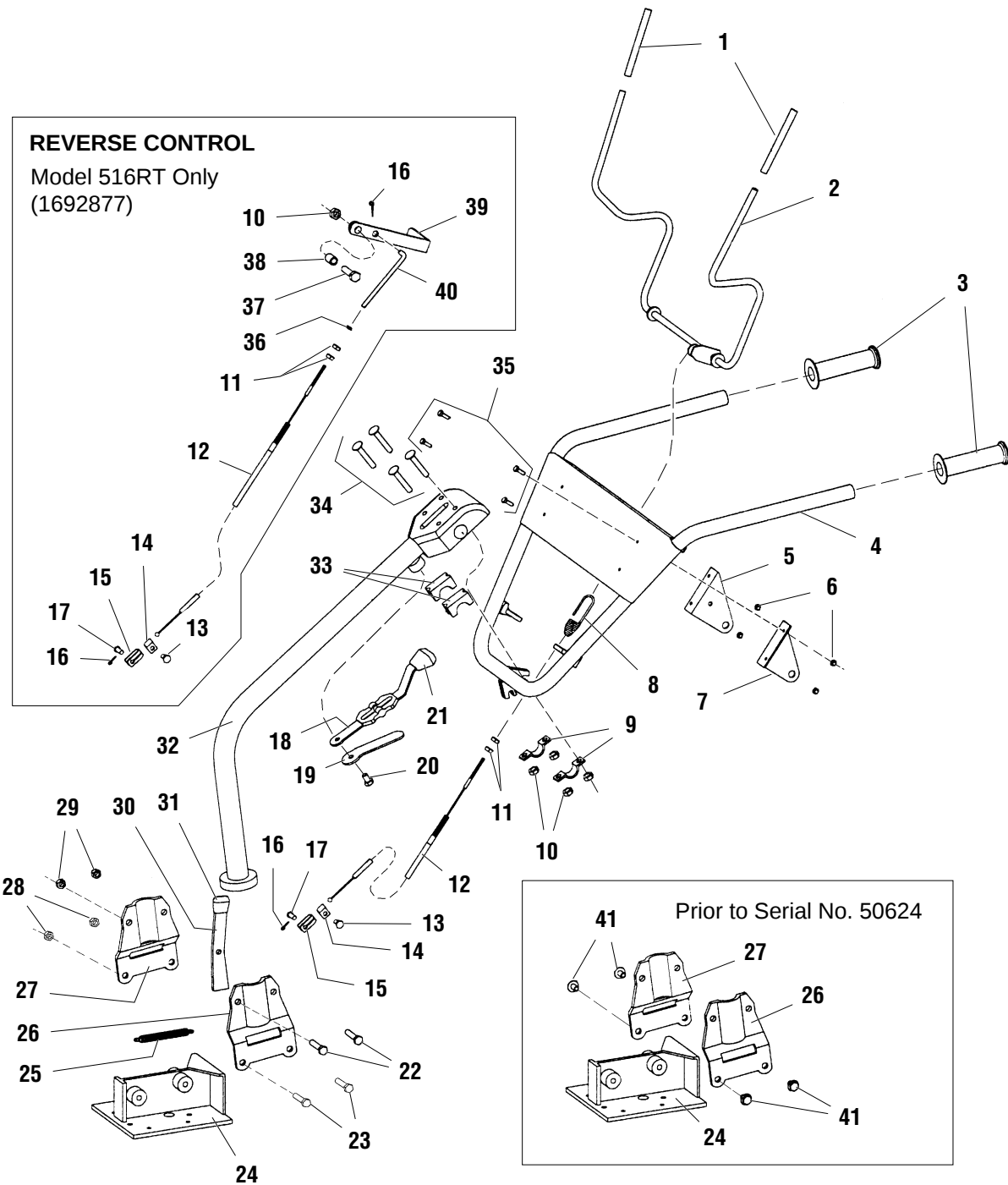
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Torque Specification Chart	Inside Back Cover
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NOTE: Unless noted otherwise, use the standard hardware torque specification chart.

The above parts group applies to the following Mfg. Nos.:

1692876 413RT, 3.5HP Rear Tine Tiller
1692877 516RT, 5HP Rear Tine Tiller

Handles & Controls

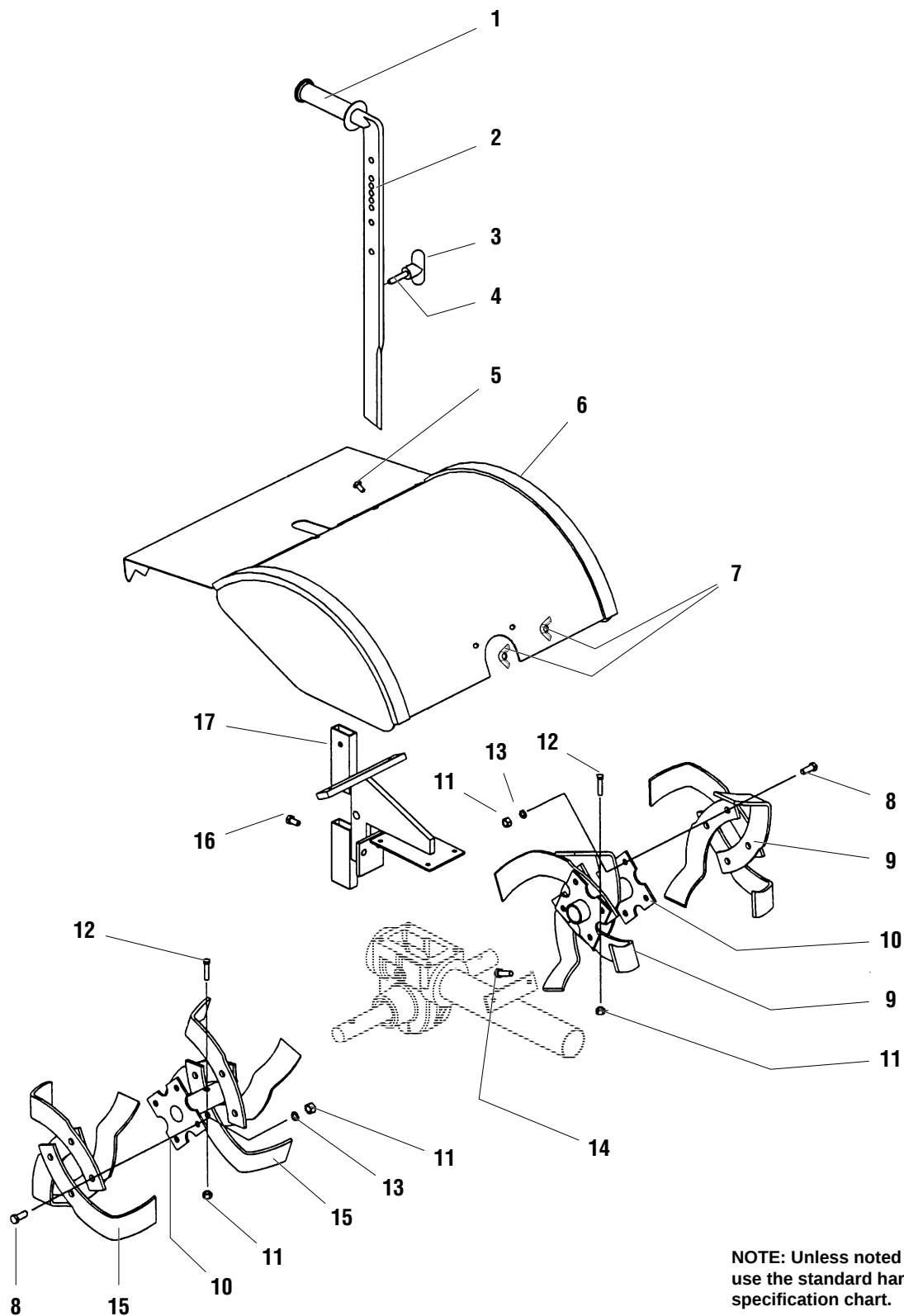
REF NO.	PART NO.	QTY.	DESCRIPTION
1	1716699	2	HANDLE GRIP, Drive Control Lever
2	1716721	1	LEVER, Drive Control
3	1716700	2	HANDLE GRIP, Black
4	1716718	1	ASSEMBLY, Main Handlebar
5	1716722	1	BRACKET, Drive Control Lever, Right
6	1716732	4	NUT, Nyloc, 5mm x 0.8mm
7	1716723	1	BRACKET, Drive Control Lever, Left
8	1716720	1	SPRING, Forward Cable Adjust
9	1716709	2	CLAMP, Handlebar Tilt
10	1917372	5	NUT, 5/16"-18 (Qty. 4 on Model 413RT)
11	920438	4	NUT, Jam, 5/16"-24 (Qty. 2 on Model 413RT)
12	1716726	2	CABLE ASSEMBLY, Control Engage (Qty. 1 on Model 413RT)
13	1921958	2	BOLT, Hex Hd, 1/4"-20 x 1/2" (Qty. 1 on Model 413RT)
14	1716727	2	CLAMP, Cable (Qty. 1 on Model 413RT)
15	1716728	2	YOKE, Cable (Qty. 1 on Model 413RT)
16	1716703	3	COTTER PIN (Qty. 1 on Model 413RT)
17	1716702	2	PIN, Link (Qty. 1 on Model 413RT)
18	1716707	1	LEVER, Handlebar Tilt
19	1716714	1	STOP, Handlebar Tilt Lever
20	1716715	1	BOLT, 8mm x 16mm
21	1716708	1	KNOB, Handlebar Tilt Lever
22	1716716	2	BOLT, 10mm x 30mm
23	1923141 *	2	BOLT, Hex Hd, 5/16" - 18 x 2-3/4", Grade 5
24	1716724	1	COVER, Transmission Wheel Housing
25	1716710	1	SPRING, Handlebar Swivel
26	1716719	1	MOUNT, Handlebar Stem, Left
27	1716706	1	MOUNT, Handlebar Stem, Right
28	1935048 *	2	NUT, Bi-way Lock, 5/16"-18
29	1716717	2	NUT, Nyloc, 10mm
30	1716712	1	LEVER, Handlebar Swivel
31	1716711	1	KNOB, Handlebar Swivel Lever
32	1716713	1	HANDLEBAR STEM
33	1716705	2	TILT FRICTION PAD
34	1931339	4	BOLT, Carriage Hd, 5/16"-18 x 2"
35	1716731	4	BOLT, Hex Hd, 5mm x 0.8mm x 10mm
36	1716730	1	NUT, Nyloc, #10 — Model 516RT Only
37	1921978	1	BOLT, Hex Hd, 5/16"-18 x 2", Grade 5 — Model 516RT Only
38	1716704	1	BUSHING, Pivot, 5/16" — Model 516RT Only
39	1716725	1	REVERSE HANDLE — Model 516RT Only
40	1716729	1	REVERSE LINK — Model 516RT Only
41	1716701 *	4	BOLT, Hex Flange Hd, 5/16"-18 x 1/2", Grade 5

Footnotes:

* Serial Nos. 50624 and above use Ref. Nos. 23 & 28. Units prior to Serial No. 50624 use Ref. No. 41.

The above parts group applies to the following Mfg. Nos.:

1692876 413RT, 3.5HP Rear Tine Tiller
1692877 516RT, 5HP Rear Tine Tiller



NOTE: Unless noted otherwise, use the standard hardware torque specification chart.

The above parts group applies to the following Mfg. Nos.:

1692876 413RT, 3.5HP Rear Tine Tiller
 1692877 516RT, 5HP Rear Tine Tiller

Hood, Drag Stake & Bolo Tones

REF NO.	PART NO.	QTY.	DESCRIPTION
1	1716700	2	HANDLE GRIP, Black
2	1716745	1	LEVER, Drag Stake — Model 516RT Only
2	1716746	1	LEVER, Drag Stake — Model 413RT Only
3	1716743	1	KNOB, T-Handle, Drag Stake
4	1716742	1	DETENT PIN, 5/16"-18 x 1"
5	1921958	2	BOLT, Hex Hd, 1/4"-20 x 1/2"
6	1716744	1	HOOD, Tiller
7	918468	2	WING NUT, 5/16"-18
8	1921210	16	BOLT, Hex Hd, 3/8"-16 x 1", Grade 5
9	1716738	8	TINE, Bolo, Left Side — Model 413RT Only
9	1716739	8	TINE, Bolo, Left Side — Model 516RT Only
10	1716740	2	HOLDER, Bolo Tine (Left & Right Sides) — Model 413RT Only
10	1716741	2	HOLDER, Bolo Tine (Left & Right Sides) — Model 516RT Only
11	1916950	18	NUT, Hex, 3/8"-16
12	1921971	2	BOLT, Hex Hd, 3/8"-16 x 1-3/4"
13	1916965	16	LOCKWASHER, Spring, 3/8"
14	1921333	2	BOLT, Hex Hd, 5/16"-18 x 1", Grade 5
15	1716736	8	TINE, Bolo, Right Side — Model 413RT Only
15	1716737	8	TINE, Bolo, Right Side — Model 516RT Only
16	1716701	2	BOLT, Hex Flange Hd, 5/16"-18 x 1/2", Grade 5
17	1716735	1	BRACKET, Depth Regulator
*	1716748	1	REPLACEMENT KIT, Bolo Tine Holder — Model 413RT Only (Includes Ref. Nos. 8, 9, 10, 11, 12, 13 & 15)
*	1716749	1	REPLACEMENT KIT, Bolo Tine Holder — Model 516RT Only (Includes Ref. Nos. 8, 9, 10, 11, 12, 13 & 15)
*	1716750	1	REPLACEMENT KIT, Bolo Tine — Model 413RT Only (Includes Ref. Nos. 8, 9, 11, 13 & 15. Does not include bolo tine holders.)
*	1716751	1	REPLACEMENT KIT, Bolo Tine — Model 516RT Only (Includes Ref. Nos. 8, 9, 11, 13 & 15. Does not include bolo tine holders.)

Footnotes:

* Not shown as a kit in illustration.

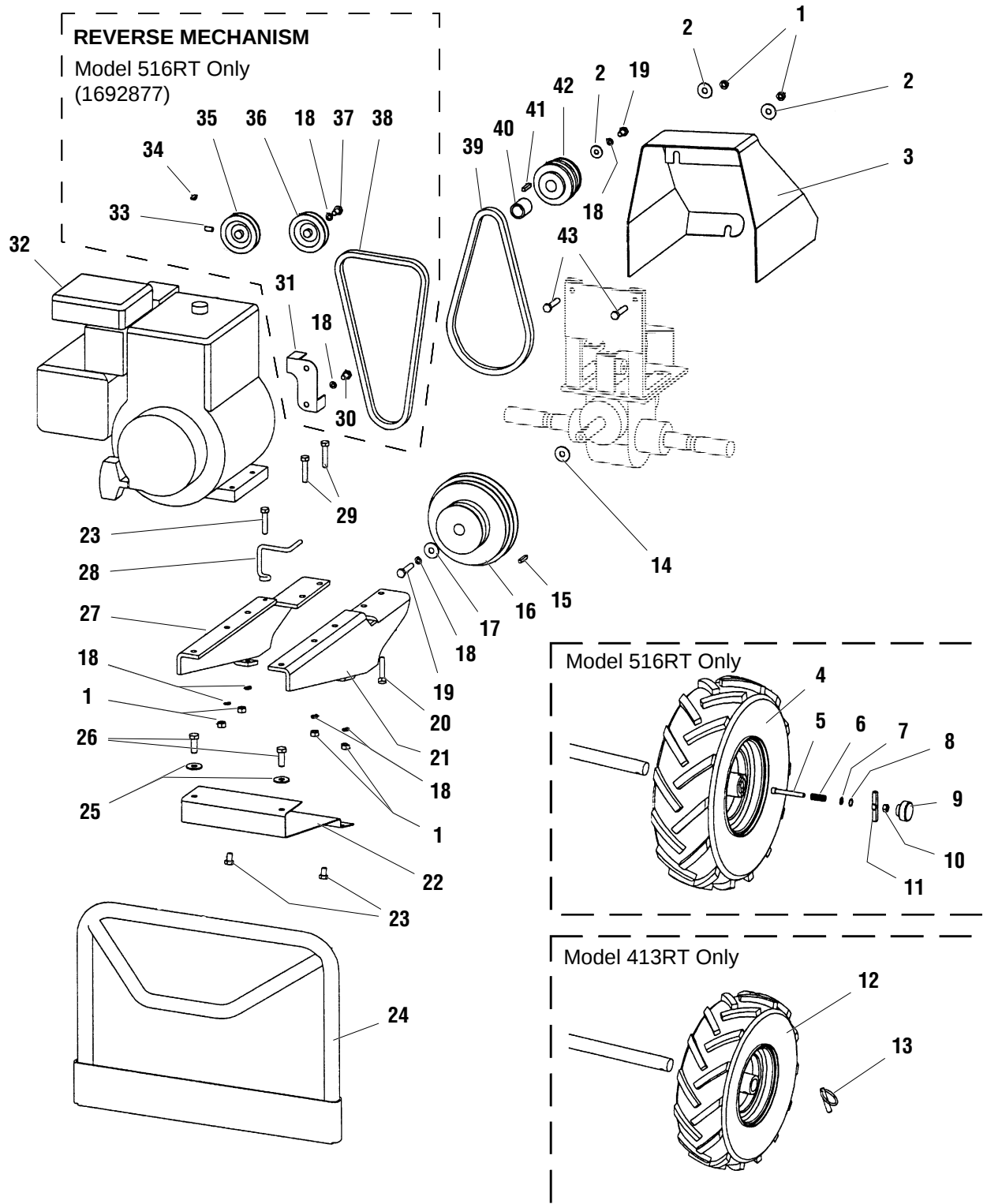
The above parts group applies to the following Mfg. Nos.:

1692876 413RT, 3.5HP Rear Tine Tiller
1692877 516RT, 5HP Rear Tine Tiller

Engine Mounting, Belts & Wheels

NOTE: Unless noted otherwise,
use the standard hardware torque
specification chart.

A-RT42015A



The above parts group applies to the following Mfg. Nos.:

1692876 413RT, 3.5HP Rear Tine Tiller
1692877 516RT, 5HP Rear Tine Tiller

Engine Mounting, Belts & Wheels

REF NO.	PART NO.	QTY.	DESCRIPTION
1	1917372	2	NUT, 5/16"-18
2	1960044	3	WASHER, Flat, 5/16"
3	1716784	1	BELT COVER
4	1716773	1	WHEEL, Tire Assembly, Left — Model 516RT Only
4	1716775	1	WHEEL, Tire Assembly, Right — Model 516RT Only
5	1716782	2	SCREW, Soc Hd, 1/4"-20 x 2" — Model 516RT Only
6	1716781	2	SPRING — Model 516RT Only
7	1960151	2	WASHER, 1/4" ID — Model 516RT Only
8	1716779	2	SNAP RING — Model 516RT Only
9	1716777	2	KNOB, Wheel Lockout — Model 516RT Only
10	928372	2	NUT, Keps, 1/4"-20 — Model 516RT Only
11	1716778	1	LOCKOUT, Set of 2 — Model 516RT Only
12	1716772	1	WHEEL, Tire Assembly, Left — Model 413RT Only
12	1716774	1	WHEEL, Tire Assembly, Right — Model 413RT Only
13	1716776	2	LOCKPIN — Model 413RT Only
14	960164	1	WASHER, Flat, 11/16" ID
15	1716771	1	KEY, 3/16" x 1"
16	1716768	1	PULLEY, Transmission — Model 413RT Only
16	1716769	1	PULLEY, Transmission — Model 516RT Only
17	1716770	1	WASHER
18	1917356	9	LOCKWASHER, Spring, 5/16" (Qty. 6 on Model 413RT)
19	1921515	2	BOLT, Hex Hd, 5/16"-24 x 3/4", Grade 5
20	1960470	4	SCREW, Soc Hd, 5/16"-18 x 1-1/4"
21	1716753	1	BRACKET, Engine Mount, Left Side
22	1716754	1	GUARD, Lower Pulley
23	1716780	5	BOLT, Hex Flange Hd, 5/16", 18 x 3/4"
24	1716783	1	BUMPER GUARD
25	1916965	2	LOCKWASHER, Spring, 3/8"
26	1921210	2	BOLT, Hex Hd, 3/8"-16 x 1", Grade 5
27	1716752	1	BRACKET, Engine Mount, Right Side
28	1716767	1	BELT GUIDE, Forward
29	1922127	4	SCREW, Hex Hd, 5/16"-18 x 1-3/4"
30	1716756	1	SCREW, Hex Hd, 5/16"-24 x 1/2" — Model 516RT Only
31	1716755	1	BELT GUIDE, Reverse — Model 516RT Only
32	*	1	ENGINE, 3.5HP, Model 413RT
32	*	1	ENGINE, 5HP, Model 516RT
33	1716758	1	SET SCREW, 1/4"-20 x 1/4" — Model 516RT Only
34	905121	1	KEY, Woodruff, #5 — Model 516RT Only
35	1716757	1	PULLEY, Engine Reverse — Model 516RT Only
36	1716761	1	PULLEY, Belt Guide, V-Groove — Model 516RT Only
37	1716760	1	BOLT, Hex Hd, 5/16"-24 x 1-1/2" — Model 516RT Only
38	1716759	1	BELT, Reverse — Model 516RT Only
39	1716765	1	BELT, Forward — Model 413RT Only
39	1716766	1	BELT, Forward — Model 516RT Only
40	1716762	1	SPACER, Engine Pulley
41	1716763	1	KEY, 3/16" x 1-1/2"
42	1716764	1	PULLEY, Engine Forward
43	1921978	2	BOLT, Hex, 5/16"-18 x 2", Grade 5

Footnotes:

* See your local Briggs & Stratton distributor for service parts.

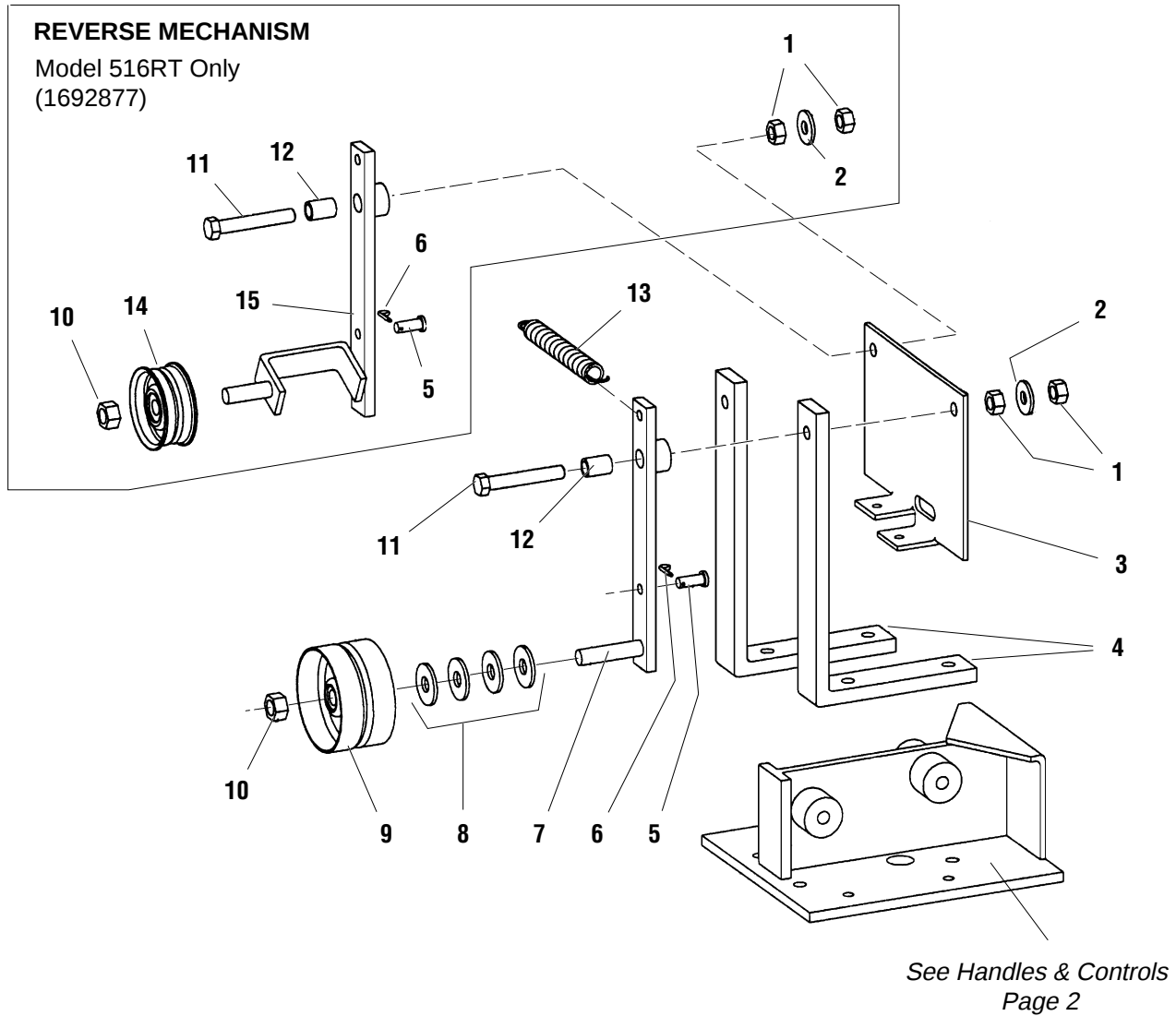
The above parts group applies to the following Mfg. Nos.:

1692876 413RT, 3.5HP Rear Tine Tiller
1692877 516RT, 5HP Rear Tine Tiller

Shifting Mechanism

NOTE: Unless noted otherwise,
use the standard hardware torque
specification chart.

A-RT42016A



The above parts group applies to the following Mfg. Nos.:

1692876 413RT, 3.5HP Rear Tine Tiller
1692877 516RT, 5HP Rear Tine Tiller

Shifting Mechanism

REF NO.	PART NO.	QTY.	DESCRIPTION
1	1917372	4	NUT, 5/16"-18
2	1960044	2	WASHER, Flat, 5/16"
3	1716807	1	BRACKET, Cable Mount
4	1716801	2	MOUNTING BAR, Shifting Mechanism
5	1716702	2	LINK PIN (Qty. 1 on Model 413RT)
6	1716703	2	COTTER PIN (Qty. 1 on Model 413RT)
7	1716804	1	IDLER ARM, Forward
8	1924940	4	WASHER, Flat, 3/8"
9	1716803	1	PULLEY, Forward Idler
10	1916950	2	NUT, Hex, 3/8"-16 (Qty. 1 on Model 413RT)
11	1921978	2	BOLT, Hex Hd, 5/16"-18 x 2, Grade 5
12	1716704	2	BUSHING, Pivot, 5/16" (Qty. 1 on Model 413RT)
13	1716802	1	SPRING, Idler Arm
14	1716805	1	PULLEY, Reverse Idler — Model 516RT Only
15	1716806	1	IDLER ARM, Reverse — Model 516RT Only

Footnotes:

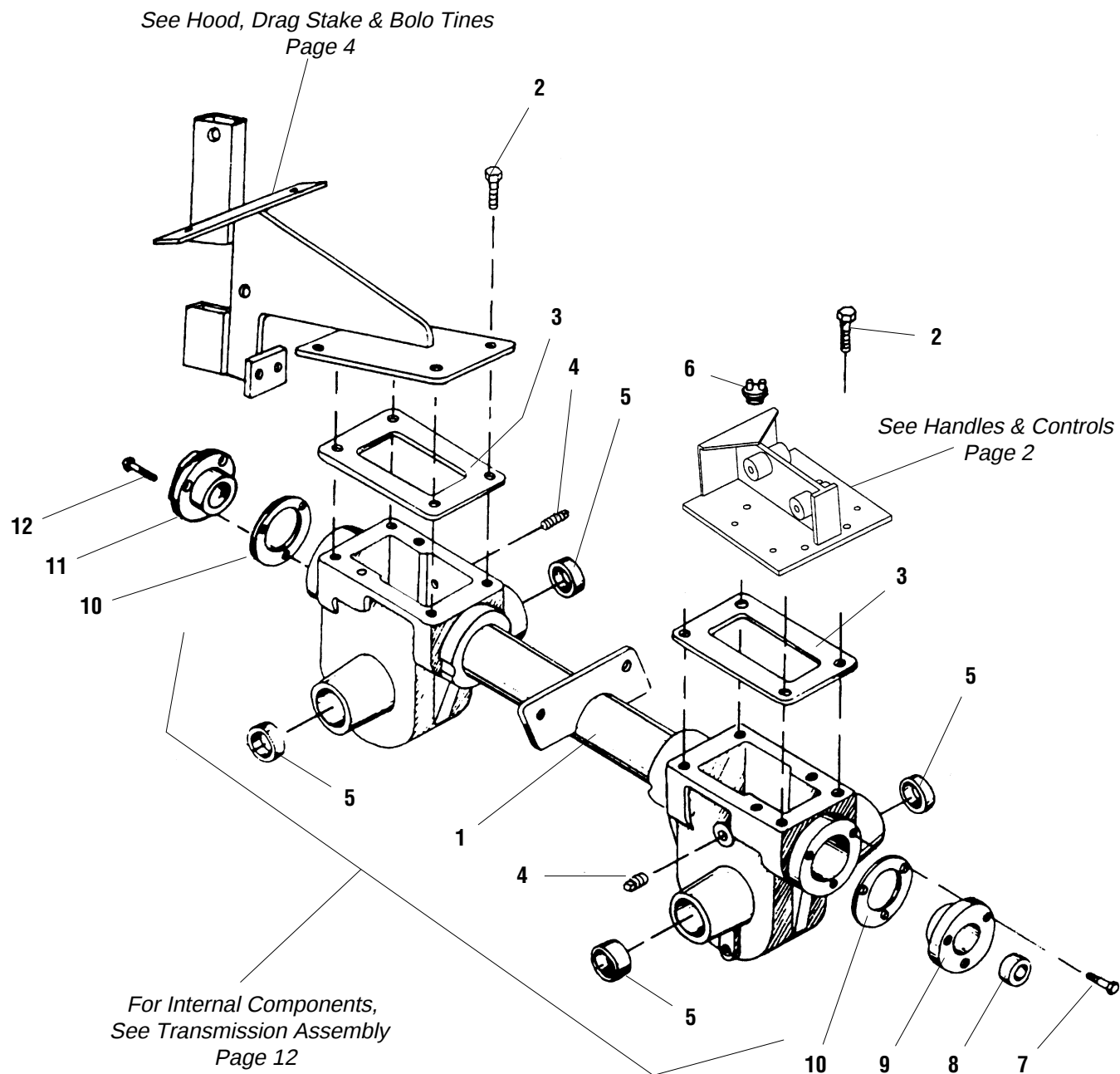
The above parts group applies to the following Mfg. Nos.:

1692876 413RT, 3.5HP Rear Tine Tiller
1692877 516RT, 5HP Rear Tine Tiller

Transmission Housing

NOTE: Unless noted otherwise,
use the standard hardware torque
specification chart.

A-RT42017A



The above parts group applies to the following Mfg. Nos.:

1692876 413RT, 3.5HP Rear Tine Tiller
1692877 516RT, 5HP Rear Tine Tiller

Transmission Housing

REF NO.	PART NO.	QTY.	DESCRIPTION
1	1716787	1	TRANSMISSION ASSEMBLY — Model 413RT Only (Complete with all gears, shafts, seals, etc.)
1	1716788	1	TRANSMISSION ASSEMBLY — Model 516RT Only (Complete with all gears, shafts, seals, etc.)
2	1716780	8	BOLT, Hex Flange Hd, 5/16"-18 x 3/4", Grade 5 (Tiller Housing & Transmission Cover)
3	1716789	2	GASKET, Tiller Housing & Transmission Cover
4	1716790	2	PIPE PLUG, Soc Hd, 1/4"-18, Oil Level
5	1716791	4	SEAL, Tiller Housing
6	1716794	1	PLUG, Oil Fill
7	1716798	3	BOLT, Hex Flange Hd, 1/4"-20 x 3/4"
8	1716797	1	OIL SEAL, Drive Shaft
9	1716796	1	CAP, Front Bearing
10	1716792	2	GASKET, Front Rear Bearing Cap
11	1716793	1	CAP, Rear Bearing
12	1716795	3	BOLT, Hex Flange Hd, 1/4"-20 x 7/8"
*	1716799	1	KIT, Oil Seal Gasket, (Includes Ref. Nos. 3, 5, 8 & 10).

Footnotes:

* Not shown as a kit in illustration.

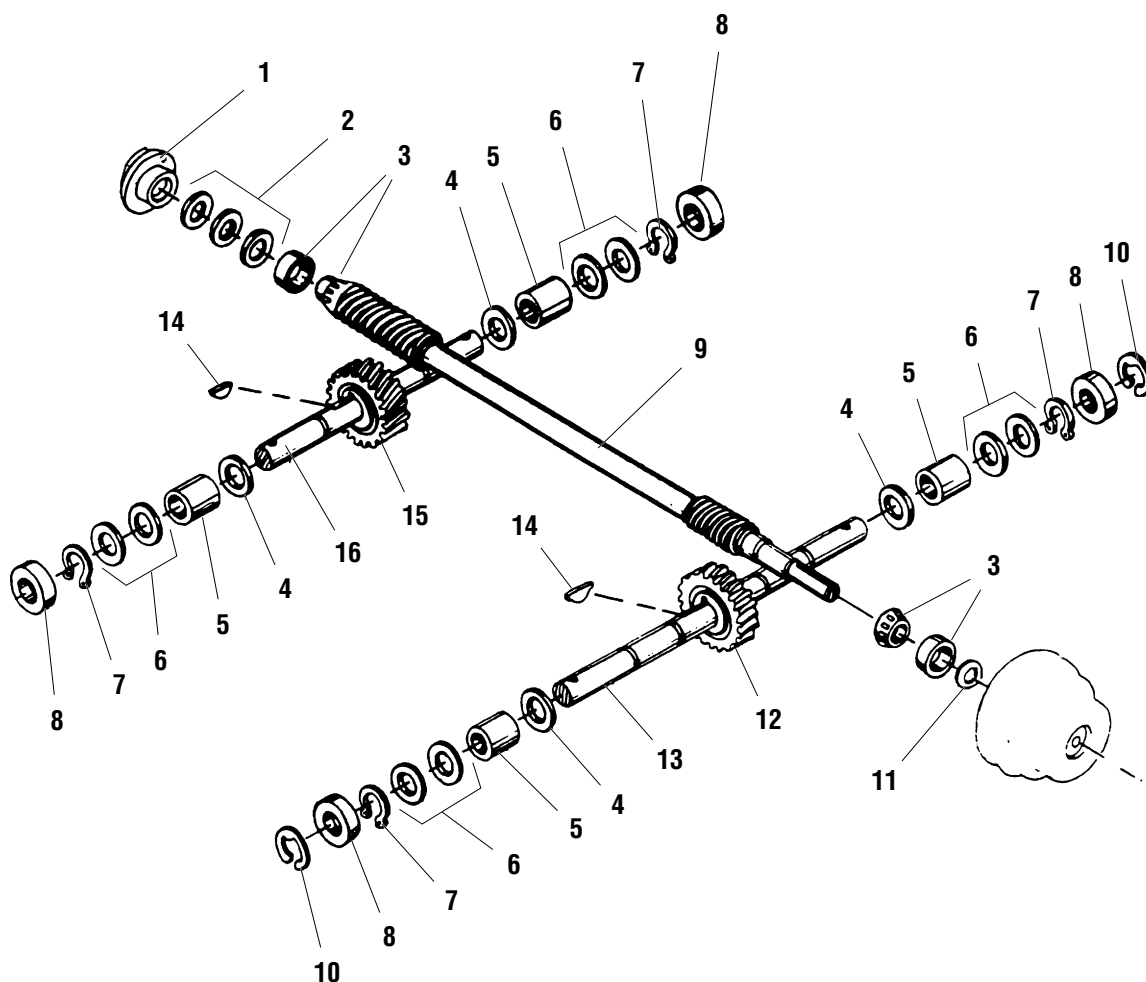
The above parts group applies to the following Mfg. Nos.:

1692876 413RT, 3.5HP Rear Tine Tiller
1692877 516RT, 5HP Rear Tine Tiller

Transmission Assembly

A-RT42018A

NOTE: Unless noted otherwise,
use the standard hardware torque
specification chart.



The above parts group applies to the following Mfg. Nos.:

1692876 413RT, 3.5HP Rear Tine Tiller
1692877 516RT, 5HP Rear Tine Tiller

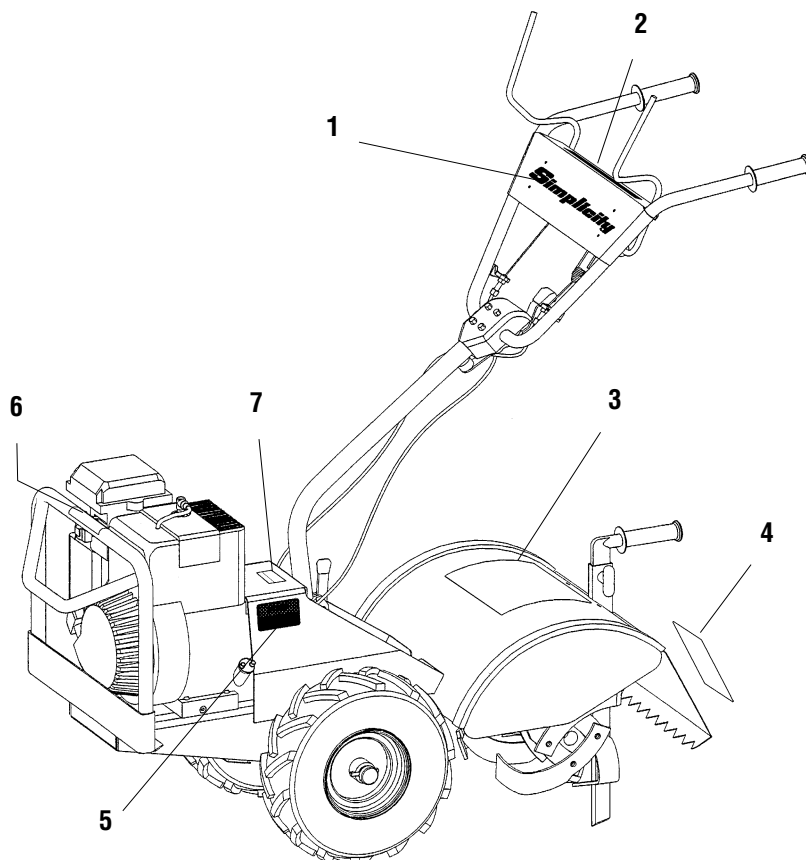
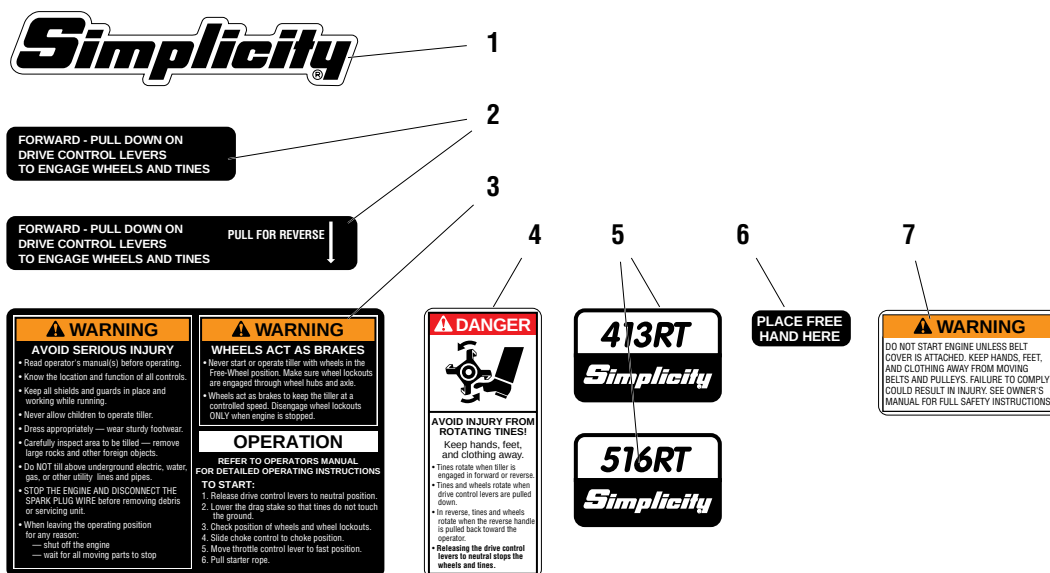
Transmission Assembly

REF NO.	PART NO.	QTY.	DESCRIPTION
1	1716793	1	CAP, Rear Bearing
2	1716825	1	SHIM SET, Rear Bearing Cap (includes the following)
2	1716826		SHIM, 1.750 OD x .062" thick, (as req'd.)
2	1716827		SHIM, 1.750 OD x .030" thick, (as req'd.)
2	1716828		SHIM, 1.750 OD x .015" thick, (as req'd.)
2	1716829		SHIM, 1.750 OD x .010" thick, (as req'd.)
3	1716810	2	BEARING, Tapered, (Includes Cone & Race)
4	1716824	4	SPACER, 1.250" x 1.000" x .062" thick
5	1716816	4	BUSHING
6	1716815	4	SHIM SET, Axle Spacer Kit (includes the following)
6	1716817		SHIM, 1.375 OD x .062" thick, (as req'd.)
6	1716818		SHIM, 1.375 OD x .030" thick, (as req'd.)
6	1716819		SHIM, 1.375 OD x .015" thick, (as req'd.)
6	1716820		SHIM, 1.375 OD x .010" thick, (as req'd.)
7	1716830	4	SNAP RING, Retainer, Internal
8	1716791	4	SEAL, Tiller Housing
9	1716809	1	MAIN DRIVE SHAFT
10	1716821	2	SNAP RING, Retainer, External
11	1716797	1	OIL SEAL, Drive Shaft
12	1716814	1	GEAR, Worm, Wheel Shaft
13	1716811	1	WHEEL SHAFT ASSEMBLY, Lockpin — Model 413RT Only
13	1716812	1	WHEEL SHAFT ASSEMBLY, Lockout — Model 516RT Only
14	1716813	2	KEY, 1/4"x 1"
15	1716823	1	GEAR, Worm, Tiller Shaft
16	1716822	1	TILLER SHAFT ASSEMBLY

Footnotes:

The above parts group applies to the following Mfg. Nos.:

1692876 413RT, 3.5HP Rear Tine Tiller
1692877 516RT, 5HP Rear Tine Tiller



The above parts group applies to the following Mfg. Nos.:

1692876 413RT, 3.5HP Rear Tine Tiller
1692877 516RT, 5HP Rear Tine Tiller

Decals

REF NO.	PART NO.	QTY.	DESCRIPTION
1	1668202	1	DECAL, Simplicity
2	1716733	1	DECAL, Console (Forward Instructions Model 413RT)
2	1716734	1	DECAL, Console (Forward/Reverse Instructions Model 516RT)
3	1716747	1	DECAL, Hood (Operating Instructions)
4	1716840	1	DECAL, Tine Hood (Tines Danger)
5	1716785	2	DECAL, Model 413RT
5	1716786	2	DECAL, Model 516RT
6	1716839	1	DECAL, Engine (Free-Hand Warning)
7	1716800	1	DECAL, Belt Cover (Warning)

Footnotes:

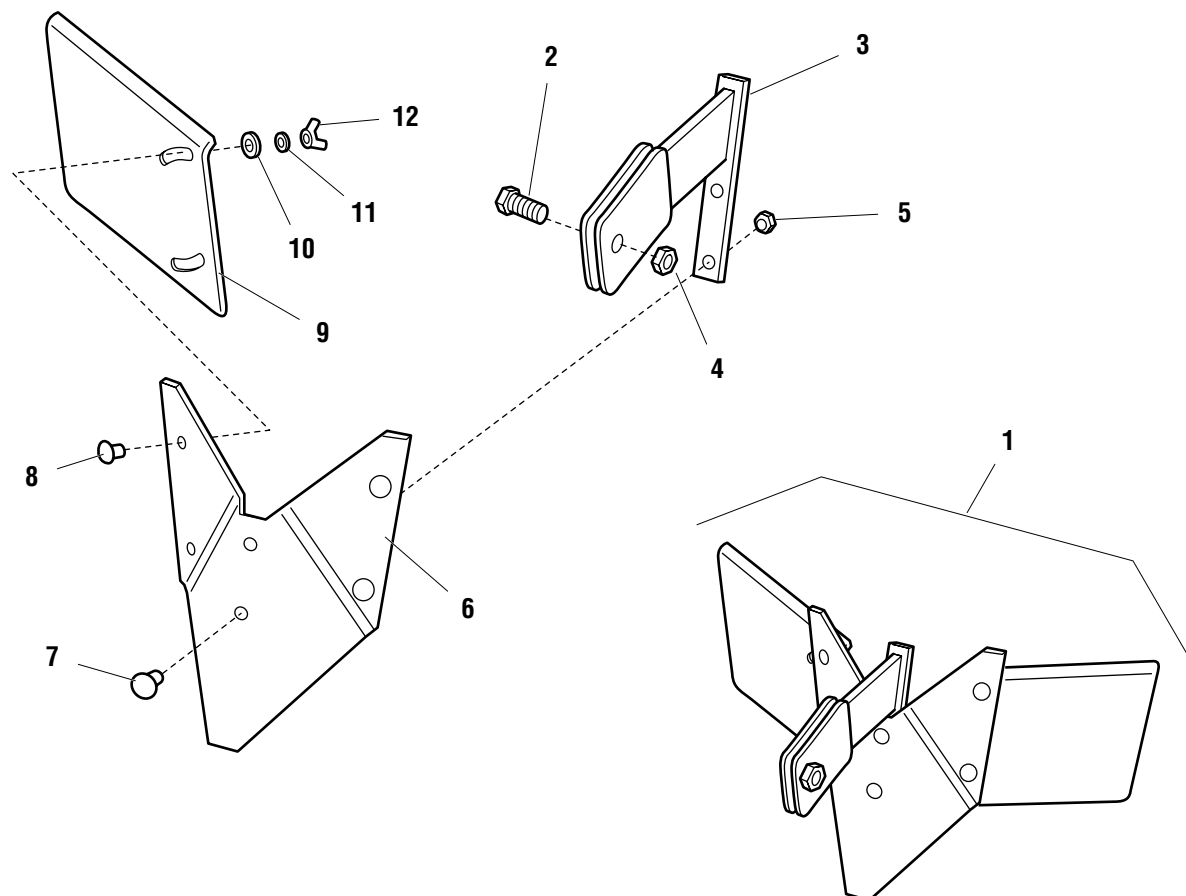
The above parts group applies to the following Mfg. Nos.:

1692876 413RT, 3.5HP Rear Tine Tiller
1692877 516RT, 5HP Rear Tine Tiller

Hiller/Furrower Attachment (Ref. Info. Only)

A-TA42020A

NOTE: Unless noted otherwise,
use the standard hardware torque
specification chart.



The above parts group applies to the following Mfg. Nos.:

1692876 413RT, 3.5HP Rear Tine Tiller
1692877 516RT, 5HP Rear Tine Tiller
1692878 Hiller/Furrower Attachment

1692878 Hiller/Furrower Attachment (Ref. Info Only)

REF NO.	PART NO.	QTY.	DESCRIPTION
1	1692878	1	HILLER/FURROWER, Complete (Order as Wholegood)
2	*	1	BOLT, Soc Hd, 3/8"-16 x 1-1/4"
3	*	1	BRACKET
4	*	1	NUT, Hex, 3/8" - 16
5	*	2	NUT, Nyloc, 3/8" - 16
6	*	1	BLADE, Furrower
7	*	2	BOLT, Carriage, 3/8 - 16 x 1-1/2"
8	*	4	BOLT, Carriage, 5/16" - 18 x 3/4"
9	*	1	HILLER WING, Left
9	*	1	HILLER WING, Right (Not Shown)
10	*	4	WASHER, Flat, 5/16"
11	*	4	LOCKWASHER, External Tooth, 5/16"
12	*	4	WING NUT, 5/16 "- 18

Footnotes:

* No servicable parts - components shown for ref. only.

The above parts group applies to the following Mfg. Nos.:

1692876 413RT, 3.5HP Rear Tine Tiller
1692877 516RT, 5HP Rear Tine Tiller
1692878 Hiller/Furrower Attachment

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1716710	2	25	1716768	6	16	1716823	12	15						
1716711	2	31	1716769	6	16	1716824	12	4						
1716712	2	30	1716770	6	17	1716825	12	2						
1716713	2	32	1716771	6	15	1716826	12	2						
1716714	2	19	1716772	6	12	1716827	12	2						
1716715	2	20	1716773	6	4	1716828	12	2						
1716716	2	22	1716774	6	12	1716829	12	2						
1716717	2	29	1716775	6	4	1716830	12	7						
1716718	2	4	1716776	6	13	1716839	14	6						
1716719	2	26	1716777	6	9	1716840	14	4						
1716720	2	8	1716778	6	11	1916950	4	11						
1716721	2	2	1716779	6	8	1916950	8	10						
1716722	2	5	1716780	6	23	1916965	4	13						
1716723	2	7	1716780	10	2	1916965	6	25						
1716724	2	24	1716781	6	6	1917356	6	18						
1716725	2	39	1716782	6	5	1917372	2	10						
1716726	2	12	1716783	6	24	1917372	6	1						
1716727	2	14	1716784	6	3	1917372	8	1						
1716728	2	15	1716785	14	5	1921210	4	8						
1716729	2	40	1716786	14	5	1921210	6	26						
1716730	2	36	1716787	10	1	1921333	4	14						

Hardware Identification & Torque Specifications

Common Hardware Types

Hex Head Capscrew



Washer



Carriage Bolt



Lockwasher



Hex Nut

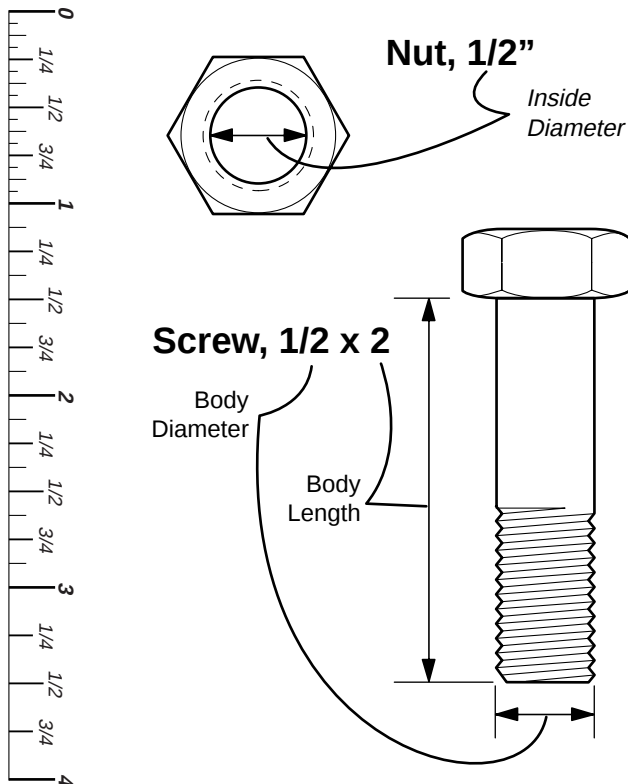


Standard Hardware Sizing

When a washer or nut is identified as **1/2"**, this is the *Nominal size*, meaning the *inside diameter* is 1/2 inch; if a second number is present it represents the *threads per inch*

When bolt or capscrew is identified as **1/2 - 16 x 2"**, this means the *Nominal size*, or *body diameter* is 1/2 inch; the second number represents the *threads per inch* (16 in this example, and the final number is the *body length* of the bolt or screw (in this example 2 inches long).

The guides and ruler furnished below are designed to help you select the appropriate hardware and tools.



Torque Specification Chart

FOR STANDARD MACHINE HARDWARE (Tolerance $\pm 20\%$)

Hardware Grade	No Marks SAE Grade 2		SAE Grade 5		SAE Grade 8	
	in/lbs ft/lbs	Nm.	in/lbs ft/lbs	Nm.	in/lbs ft/lbs	Nm.
8-32	19	2.1	30	3.4	41	4.6
8-36	20	2.3	31	3.5	43	4.9
10-24	27	3.1	43	4.9	60	6.8
10-32	31	3.5	49	5.5	68	7.7
1/4-20	66	7.6	8	10.9	12	16.3
1/4-28	76	8.6	10	13.6	14	19.0
5/16-18	11	15.0	17	23.1	25	34.0
5/16-24	12	16.3	19	25.8	27	34.0
3/8-16	20	27.2	30	40.8	45	61.2
3/8-24	23	31.3	35	47.6	50	68.0
7/16-14	30	40.8	50	68.0	70	95.2
7/16-20	35	47.6	55	74.8	80	108.8
1/2-13	50	68.0	75	102.0	110	149.6
1/2-20	55	74.8	90	122.4	120	163.2
9/16-12	65	88.4	110	149.6	150	204.0
9/16-18	75	102.0	120	163.2	170	231.2
5/8-11	90	122.4	150	204.0	220	299.2
5/8-18	100	136	180	244.8	240	326.4
3/4-10	160	217.6	260	353.6	386	525.0
3/4-16	180	244.8	300	408.0	420	571.2
7/8-9	140	190.4	400	544.0	600	816.0
7/8-14	155	210.8	440	598.4	660	897.6
1-8	220	299.2	580	788.8	900	1,244.0
1-12	240	326.4	640	870.4	1,000	1,360.0

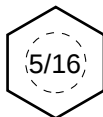
NOTES

- These torque values are to be used for all hardware excluding: locknuts, self-tapping screws, thread forming screws, sheet metal screws and socket head setscrews.
- Recommended seating torque values for locknuts:
 - for prevailing torque locknuts - use 65% of grade 5 torques.
 - for flange whizlock nuts and screws - use 135% of grade 5 torques.
- Unless otherwise noted on assembly drawings, all torque values must meet this specification.

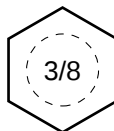
Wrench & Fastener Size Guide



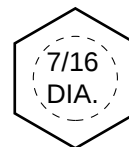
1/4" Bolt or Nut
Wrench—7/16"



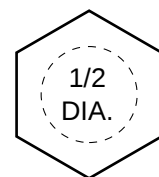
5/16" Bolt or Nut
Wrench—1/2"



3/8" Bolt or Nut
Wrench—9/16"



7/16" Bolt or Nut
Wrench (Bolt)—5/8"
Wrench (Nut)—11/16"



1/2" Bolt or Nut
Wrench—3/4"