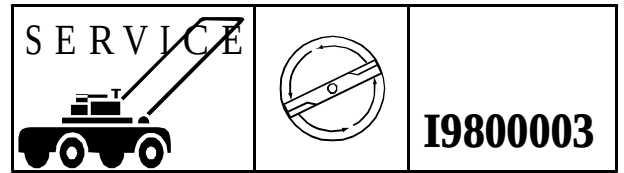


Jonsered



IPL, LTH13 42", 1998-01, 106 24 86-62

LTH13 42"

Spare parts

Ersatzteile

Pièces détachées

Reserve onderdelen

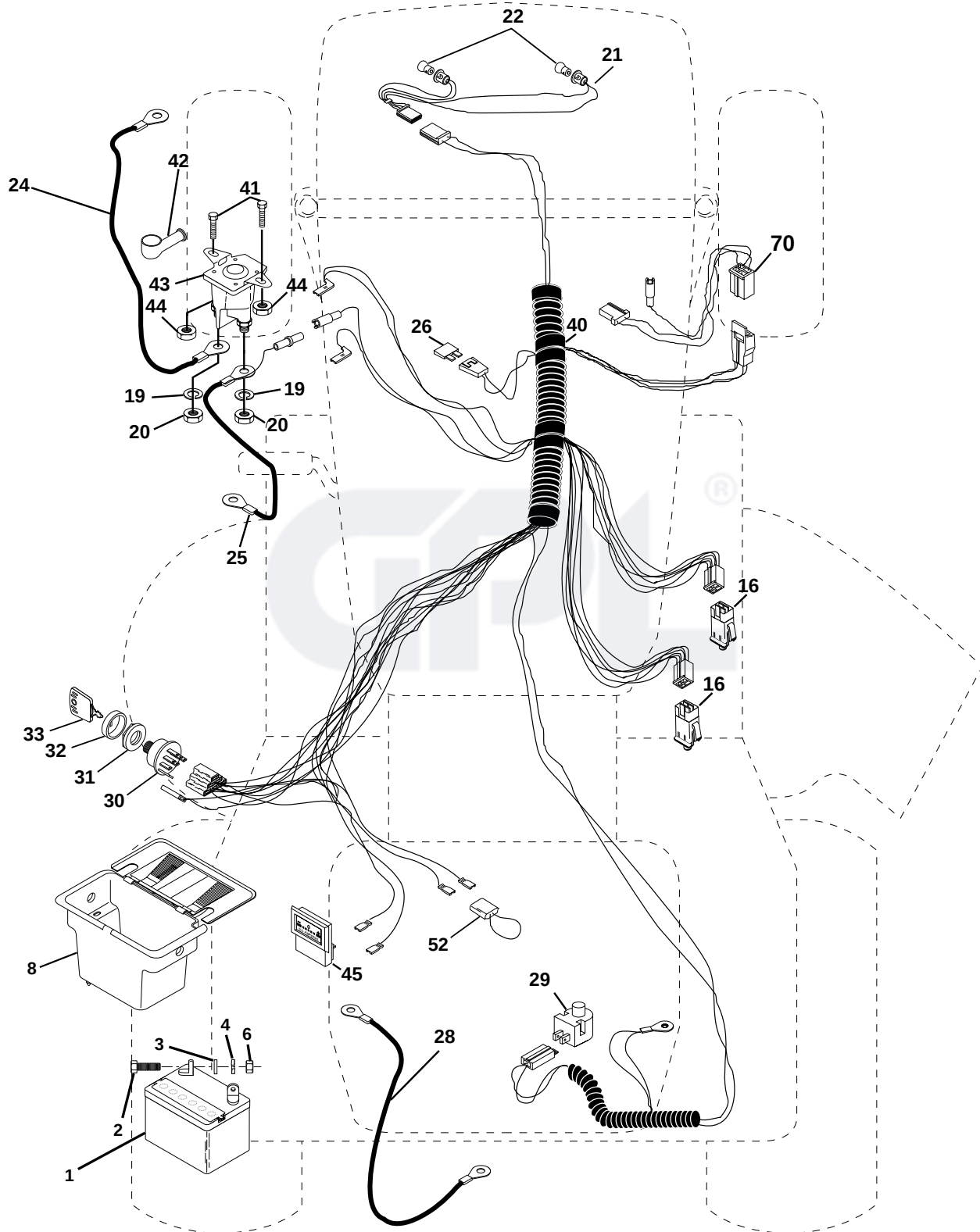
Repuestos

Reservdelar

GPL®

P

ELECTRICAL



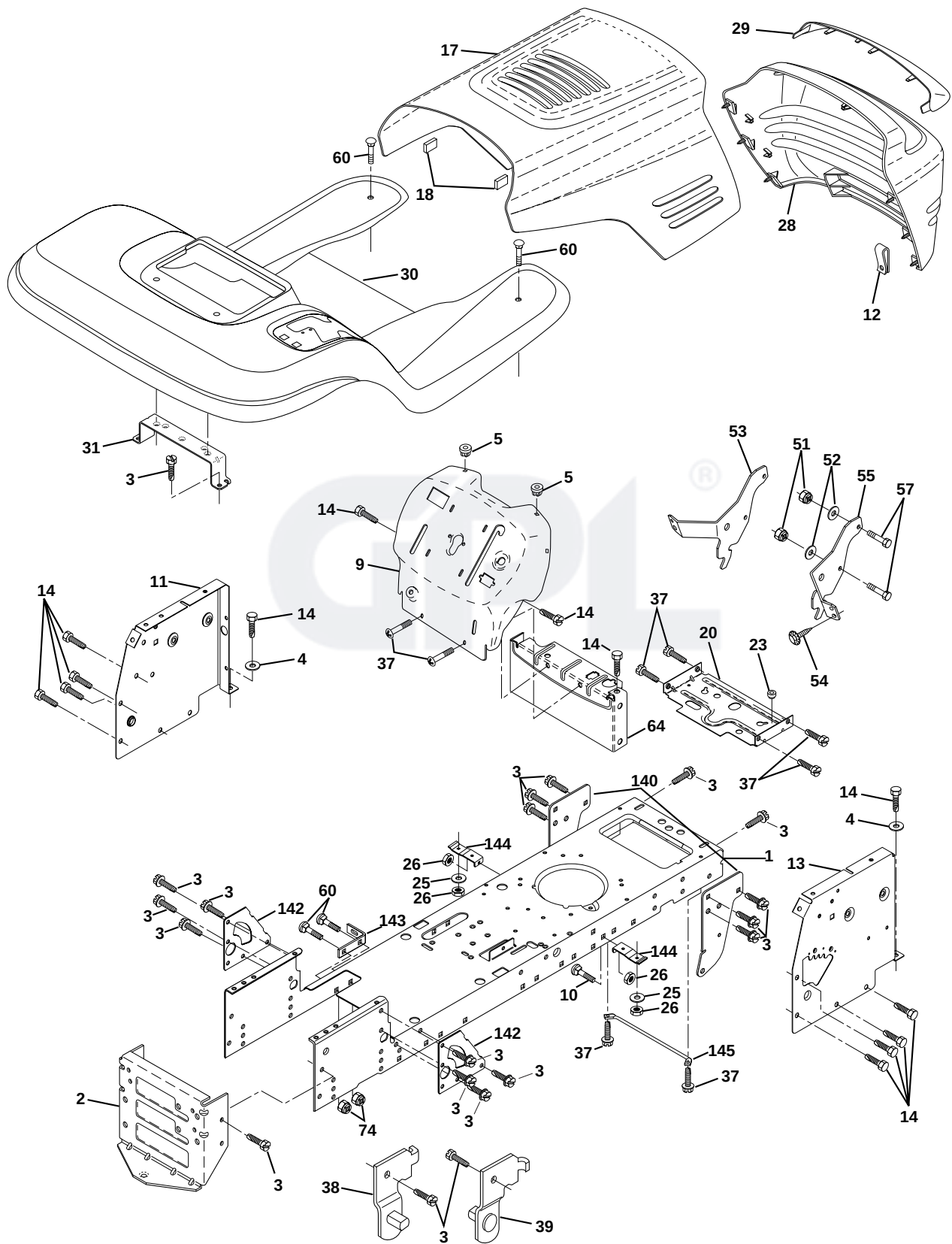
ELECTRICAL

KEY NO.	PART NO.	DESCRIPTION
1	532144925	Battery 12 Volt 25 AMP
2	874760412	Bolt Hex Hd 1/4-20unc X 3/4
3	819091016	Washer 9/32 X 5/8 X 16 Ga.
4	810040400	Washer Lock Hvy Helical 1/4
6	873220400	Nut Fin Hex 1/4-20 Unc
8	532156417	Case Battery Mech Hinge
16	532153664	Switch Interlock Push-In
19	810090400	Washer Lock 1/4
20	873350400	Nut Jam Hex 1/4-20 Unc
21	532147430	Harness Asm Light W/4152j
22	532004152	Bulb Light #1156
24	532124780	Cable Battery 6 Ga 11" red
25	532146147	Cable Battery 6 Ga 44" red w/16 wire
26	532108824	Fuse 30 AMP Auto Green
28	532124773	Cable Ground 6 Ga 12" black
29	532121305	Switch Plunger Nc Gray
30	532140301	Switch Ign 4 pos w/lights
31	532124211	Nut Ignition
32	532141226	Cover Sw Ignition
33	532122147	Key Ign Modelled Generic
40	532156442	Harness Ign.
41	871110408	Bolt Blk Fin Hex 1/4 - 20 x 1/2
42	532131563	Cover Terminal Red
43	532145673	Solenoid
44	873640400	Nut Keps Hex 1/4-20 Unc
45	532121433	Ammeter Rectangular 6 Amp
52	532141940	Protection Wire Loop
70	532140413	Harness, Eng. B&S/Tec Dual

NOTE: All component dimensions given in U.S. inches.
1 inch = 25.4 mm.

A

CHASSIS AND ENCLOSURES



A

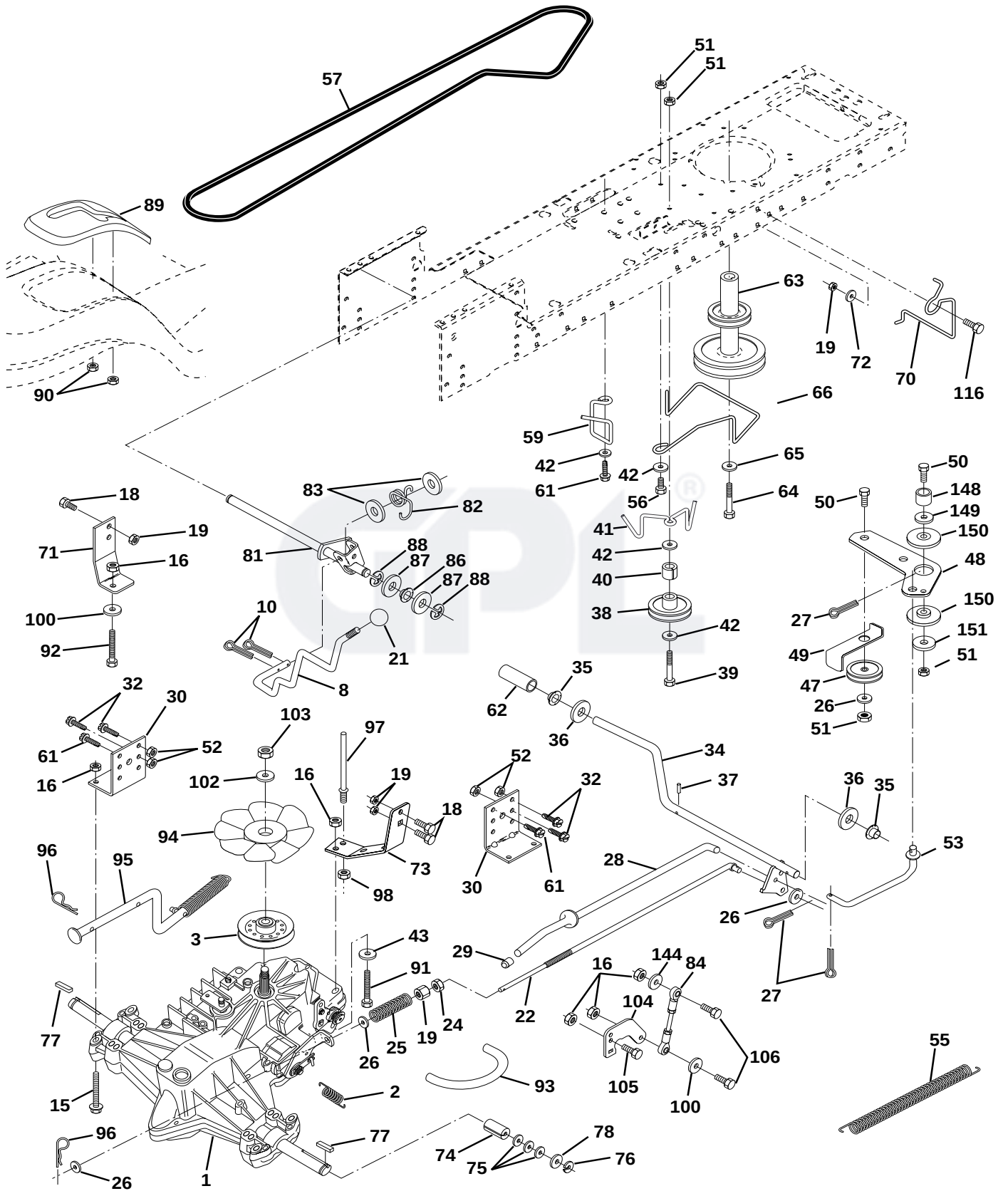
CHASSIS AND ENCLOSURES

KEY NO.	PART NO.	DESCRIPTION
1	532160392	Chassis Weldment
2	532140356	Drawbar, Stretch
3	817490612	Screw Thdrol 3/8-16x3/4 Ty-tt
4	819131216	Washer 13/32 x 3/4 x 16 Ga.
5	532155272	Bumper Hood/Dash
9	532163186	Dash P/L
10	872140608	Bolt Carriage 3/8-16 x 1
11	532155927	Panel Dash Lh
12	532145660	Clip Tinnerman Grille P/L
13	532155936	Panel Dash Rh
14	817490608	Screw Thdrol 3/8-16x1/2 Ty-tt
17	532150760	Hood LT/PL with Louvers
18	532126938	Bumper Hood
20	532156437	Plate Mtg Battery Fuel Tank Fr
23	532124028	Bushing
25	819131312	Washer 13/32 X 13/16 X 12 Ga
26	873800600	Nut Lock Hex W/Ins 3/8-16 Unc
28	532150671	Grille with Clips
29	532145199	Lens LT/PL Grille Shark Plain
30	532156793	Fender Footrest
31	532139976	Bracket Support Fender
37	817490508	Screw Thdrol 6/16-18 x 1/2 TYT
38	532139886	Bracket, Asm. Pivot, L.H., Mower Rear
39	532139887	Bracket, Asm. Pivot, R.H., Mower Rear
51	873800400	Nut Lock Hex W/Ins 1/4-20
52	819091416	Washer 9/32 x 7/8 x 16 Ga.
53	532145201	Bracket Pnt. Pickoff LH
54	532161464	Screw Hex Wshd 8-18 x 7/8
55	532145202	Bracket Grille Pickoff RH
57	874780412	Bolt Hex 1/4-20 x 3/4
60	872140606	Bolt Rdhd Sqnk 3/8-16unc x 3/4
64	532154798	Dash Lower STLT
74	873680600	Nut Crownlock 3/8-16 UNC
140	532158418	Bracket Suspension Front
142	532156095	Plate Reinforcement STLT
143	532154966	Bracket Swaybar Chassis
144	532154207	Bracket Pnt Footrest STLT
145	532156524	Rod Pivot Chassis/Hood
--	532005479	Plug Button

NOTE: All component dimensions given in U.S. inches
1 inch = 25.4 mm

L

DRIVE



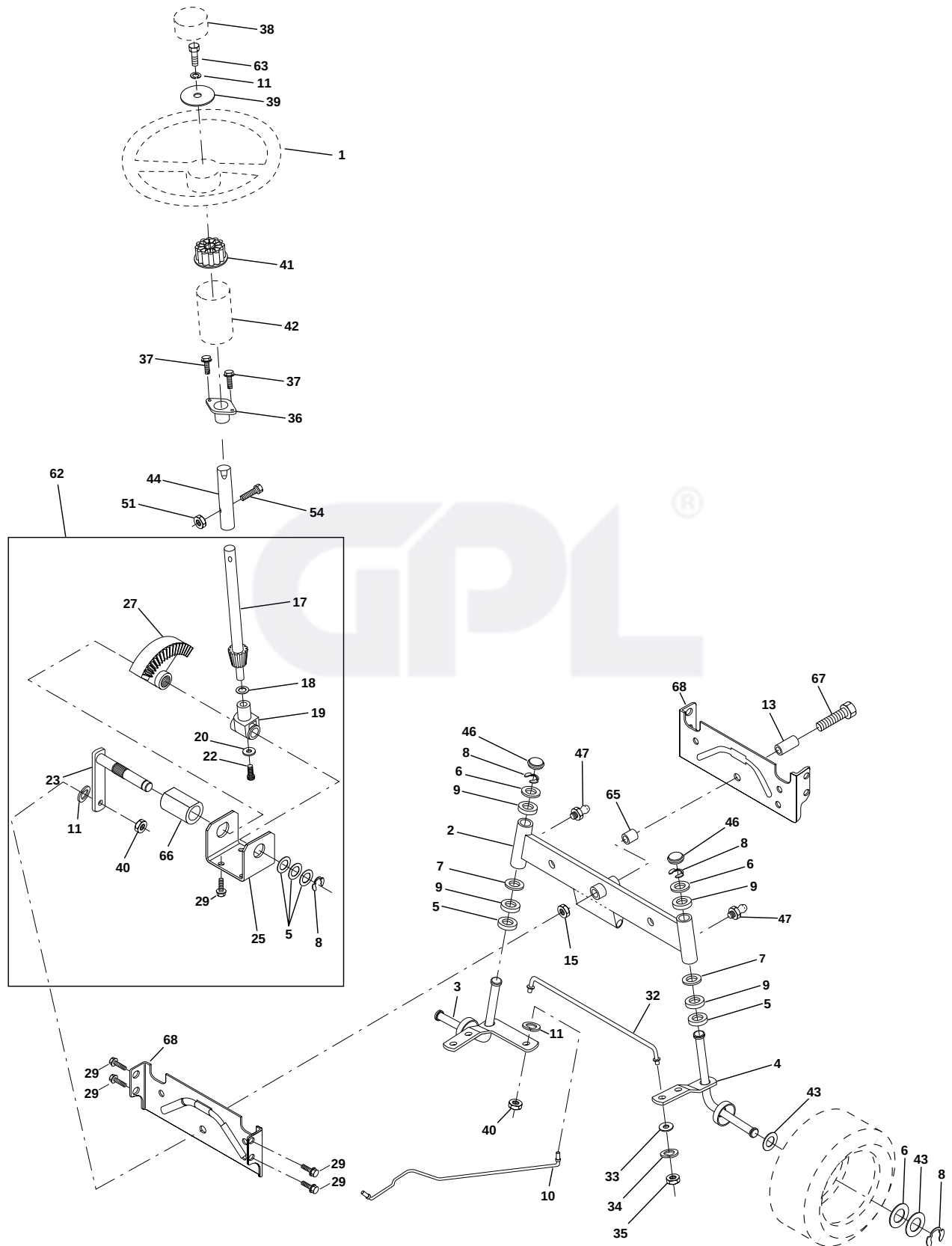
DRIVE

KEY PART NO. NO.	DESCRIPTION	KEY PART NO. NO.	DESCRIPTION
1 - - - - -	Transaxle (See Brakedown) Hydro Gear 310-0650	64 871170764	Bolt, Hex
2 532142431	Spring, Return, Brake	65 810040700	Washer
3 532143995	Pulley, Transaxle	66 532161488	Keeper Belt Engine
8 532154792	Rod Shift Hydro LT	70 532134683	Keeper Belt Engine
10 876020416	Pin Cotter 1/8 x 1 CAD	71 532140158	Strap Torque Lh Hydro 18/20" T
15 874490544	Bolt Fin Hex 5/16-18 Unc	72 819132012	Washer 13/32 x 1-1/4 x 12 Gauge
16 873800500	Nut Lock Hex W/Ins. 5/16-18 Unc P	73 532156347	Strap Torque Rh Hydro
18 874780616	Bolt Fin Hex 3/8-16 Unc x 1 Gr. 5	74 532121199	Spacer, Split
19 873800600	Nut Lock Hex W/Wsh 3/8-16 Unc	75 532121749	Washer 25/32 x 1-1/4 x 16 Gauge
21 532140845	Knob 1/2-13	76 812000001	E-Ring
22 532145627	Rod, Brake Hydro	77 532123583	Key, Square
24 873350600	Nut	78 532121748	Washer 25/32 x 1-5/8 x 16 Gauge
25 532106888	Spring, Brake Rod	81 532161709	Shaft Asm. Cross Hydro 20" Tires
26 819131316	Washer	82 532123782	Spring Torsion T/A
27 876020412	Pin Cotter 1/8 x 3/4 CAD.	83 819171216	Washer 17/32 x 3/4 x 16 Ga.
28 532145204	Rod, Parking Brake	84 532161901	Rod, Tie Hydro
29 532071673	Cap, Parking Brake	86 532157480	Bushing
30 532130807	Bracket, Transaxle	87 819212016	Washer 21/32 x 1-1/4 x 16 Ga.
31 532127275	Keeper Belt Lh	88 812000008	Ring Klip #5304-62
32 874760512	Bolt Hex Hd 5/16-18 Unc x 3/4	89 532158388	Console, Shift
34 532155071	Shaft, Foot Pedal	90 532124346	Nut Self-thd Wsh-hd 1/4 Zinc
35 532120183	Bearing, Nylon	91 874780536	Bolt Fin Hex 5/16-18 x 2-1/4
36 819211616	Washer	92 874780524	Bolt Fin Hex 5/6-18 Unc x 1-1/2
37 532124963	Pin, Roll	93 532142564	Line Fuel Hydro 4"
38 532123674	Pulley, Idler, Flat	94 532140462	Fan, Hydro 7"
39 874760644	Bolt	95 532144643	Control Asm Bypass Hydro
40 532124965	Spacer, Split	96 532124788	Retainer Spring 1" Zinc/Cad
41 532154777	Keeper, Belt Idler	97 532140469	Keeper Bolt Rh Hydro 0750. 18/20"
42 819131312	Washer 13/32 x 13/16 x 12 Gauge	98 873510600	Nut Keps Hex 3/8-16 Unc
43 819111012	Washer 11/32 x 5/8 x 12 Ga.	100 819111216	Washer 11/32 x 3/4 x 16 Ga.
47 532127783	Pulley, Idler, V-Groove	102 532141322	Washer Belville .501D x 1.50D
48 532154407	Bellcrank Clutch Grnd Drv STL	103 873940800	Nut Hex Jam Toplock 1/2-20 Unf
49 532123205	Retainer, Belt	104 532140156	Arm, Control Hydro
50 874760624	Bolt	105 871070516	Screw Cap Hex 5/16 x 18 x 1
51 873680600	Nut	106 874780520	Bolt Fin Hex 5/16-18 Unc x 1-1/4
52 873680500	Nut Crownlock 5/16-18 UNC	116 872110610	Bolt Rdhd Sq Neck 3/8-16 x 1.25
53 532105710	Link, Clutch	144 819111016	Washer 11/32 x 5/8 x 16 Ga.
55 532105709	Spring, Return, Clutch	148 532159103	Spacer
56 874760620	Bolt Fin Hex 3/8-16 x 1-1/4	149 532122052	Spacer Retainer PM Mower
57 531006091	V-Belt, Ground Drive	150 532150935	Bushing Nylon Collared
59 532140312	Keeper, Center Span	151 819133210	Washer 13/32 x 2 10 Ga.
61 817490612	Screw Thdrol. 3/8-16 x 3/4 Ty. TT		
62 532124872	Cover, Pedal		
63 532161399	Pulley, Engine		

NOTE: All component dimensions given in U.S. inches
1 inch = 25.4 mm

H

STEERING ASSEMBLY



H

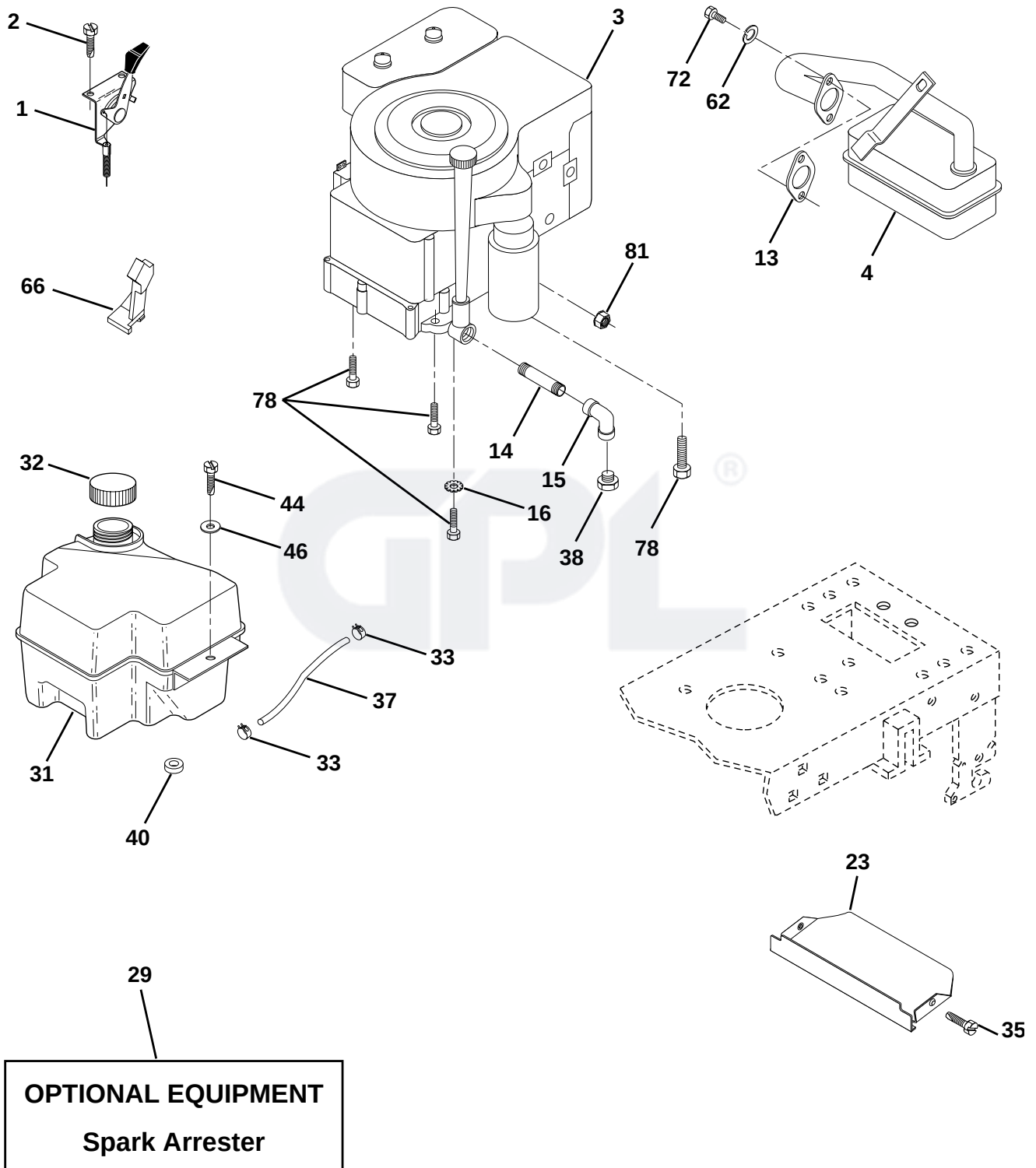
STEERING ASSEMBLY

KEY NO.	PART NO.	DESCRIPTION
1	532140044	Wheel Steering
2	532154427	Axle Asm STMP Dropped STL
3	532156483	Spindle Asm LH
4	532157473	Spindle Asm RH
5	532124931	Bearing Race Thrust Harden
6	532121748	Washer 25/32 X 1-5/8 X 16 Ga
7	819272016	Washer 27/32 X 1-1/4 X 16 Ga
8	812000029	Ring Klip #t5304-75
9	532124937	Bearing Col Strg Blk
10	532156438	Link Drag Extended Stamp
11	810040600	Washer Lock Hvy Hlcl Spr 3/8
13	532154779	Bearing Axle STLT/GT
15	873901000	Nut Lock Flange 5/8-11 Unc
17	532156546	Shaft Asm Strg
18	532057079	Washer Thrust 515x 750x 033
19	532124035	Support Shaft
20	532126684	Washer Shim 1/4 X 5/8 X 062
22	871200410	Screw Hex Socket 1/4 - 20 x 5/8
23	532127501	Shaft Asm Pittman
25	532154406	Bracket Steering
27	532136874	Gear Sector
29	817490612	Screw Thdrol 3/8-16x3/4 Ty-tt
32	532139929	Rod Tie BJ Solid 19 75 Mech
33	819111296	Washer 11/32 x 3/4 x 16 Ga.
34	810040500	Washer Lock Hvy Hlcl Spr 5/16
35	873810500	Locknut 5/16 - 24 unf
36	532155099	Bushing Strg
37	532152927	Screw
38	532140045	Insert Cap Strg Wh Au
39	819133808	Washer 13/32 X 2-3/8 X 8 Ga
40	532124701	Lock nut
41	532100711	Adaptor Wheel Strg
42	532145054	Boot Steering Shaft
43	532121749	Washer 25/32 X 1 1/4 X 16 Ga
44	532153720	Extension Steering Shaft LR/LT
46	532121232	Cap Spindle Fr Top Blk
47	532124836	Fitting Grease
51	873800500	Nut Lock Hex w/Ins 5/16-18
54	874780520	Bolt Fin Hex 5/16-18 Unc x 1-1/4
62	532156594	Kit, Steering Assembly Svc
63	874780616	Bolt Fin Hex 3/8-16unc x 1 Gr. 5
65	532154780	Spacer Axle
66	532154404	Bearing Arm Pittman
67	874781044	Bolt, Fin Hex 5/8-11 UNC x 2-3/4
68	532154429	Axle, Brace

NOTE: All component dimensions given in U.S. inches.
1 inch = 25.4 mm.

F

ENGINE



F

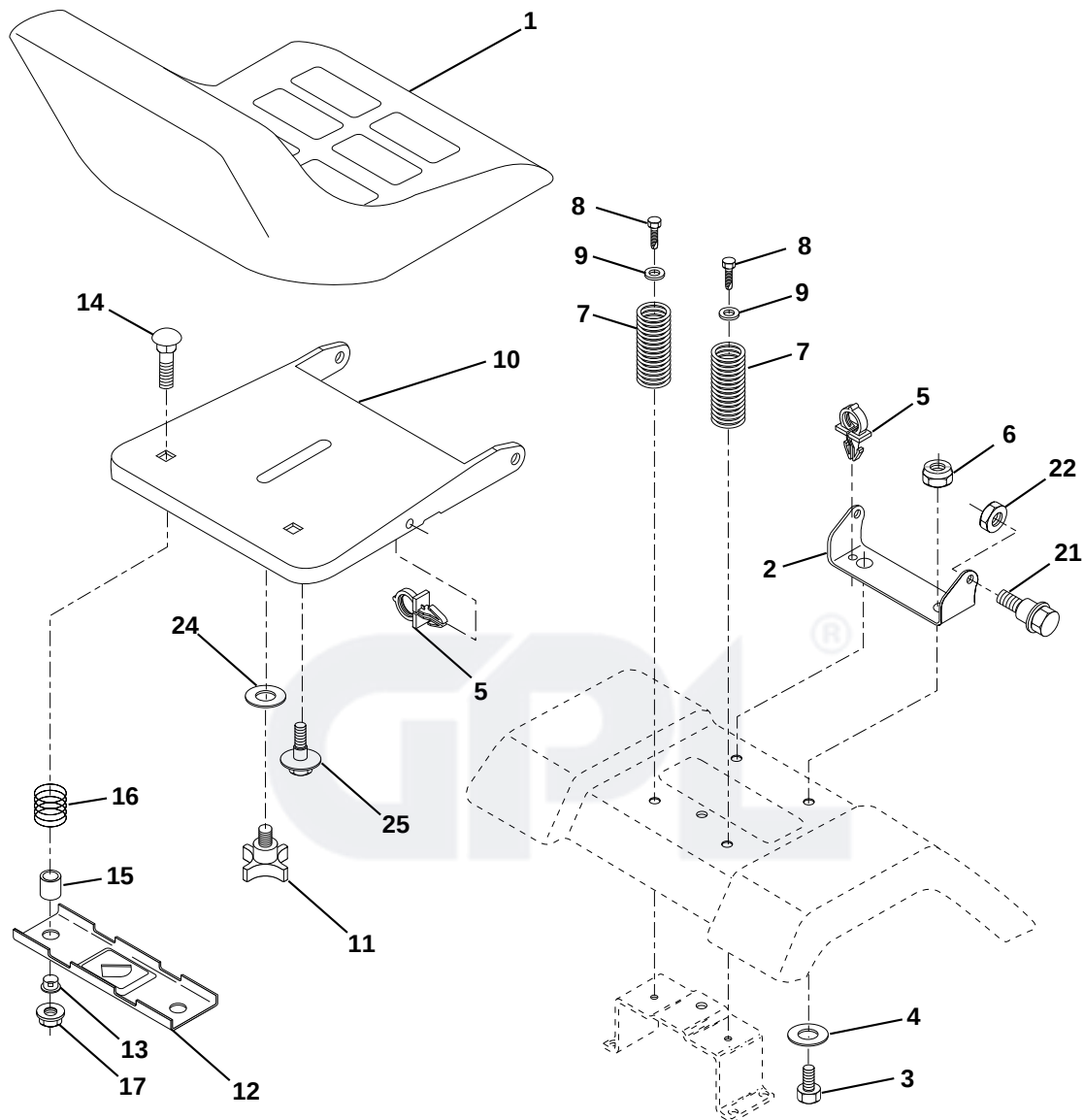
ENGINE

KEY NO.	PART NO.	DESCRIPTION
1	532141359	Control Th/ch 20.22 LH Flag
2	817720410	Screw Hex Thd Cut 1/4-20x5/8 T
3	-----	Engine B&S Model No. 28M707
4	532137352	Muffler LT B&S 14HP IC
13	532272293	Gasket Eng 1 313 Id Tin Plated
14	813280324	Nipple Pipe 3/8 Npt X 3"
15	813200300	Elbow Std 90 Degree 3/8-18 Npt
16	811050600	Washer Lock Ext Tooth 3/8
23	532159880	Shield Brn/Dbr Guard
29	532137180	Kit Spark Arrestor (Flat Scrn)
31	532161911	Tank Fuel Front 2 00
32	532140527	Cap Asm Fuel W/sym Vented
33	532123487	Clamp Hose Black
35	817490512	Screw
37	532137040	Line Fuel 20"
38	-----	Plug Oil Drain (Order From Engine Manufacturer)
40	532124028	Bushing Snap Nyl Blk Fuel Line
44	817490412	Screw Hexwsh Thdrol 1/4-20x3/4
46	819091416	Washer 9/32 X 7/8 X 16 Ga
62	810040500	Washer Lock Hvy Hlcl Spr 5/16
66	532127951	Stop Throttle 3000 RPM
72	871070512	Screw Hexhd Cap 5/16-18x 3/4
78	817490620	Screw Thdrol 3/8-16x1-1/4 TYTT
81	532128861	Nut Flange 1/4-20 Starter Nut

NOTE: All component dimensions given in U.S. inches
1 inch = 25.4 mm

C

SEAT ASSEMBLY



KEY PART NO. NO.

DESCRIPTION

1	532140117	Seat
2	532140551	Bracket Pivot Seat 8 720
3	874760616	Bolt Fin Hex 3/8-16unc X 1
4	819131610	Washer 13/32 X 1 X 10 Ga
5	532145006	Clip Push-In
6	873800600	Nut Hex w/Ins. 3/8-16 Unc
7	532124181	Spring Seat Cprsn 2 250 Blk Zi
8	817490616	Screw Thdrol 3/8-16 X 1 Ty-tt
9	819131614	Washer 13/32 X 1 X 14 Ga.
10	532155925	Pan Seat
11	532120068	Knob Seat 1/2-13 UNC Blk
12	532121246	Bracket Mounting Switch

KEY PART NO. NO.

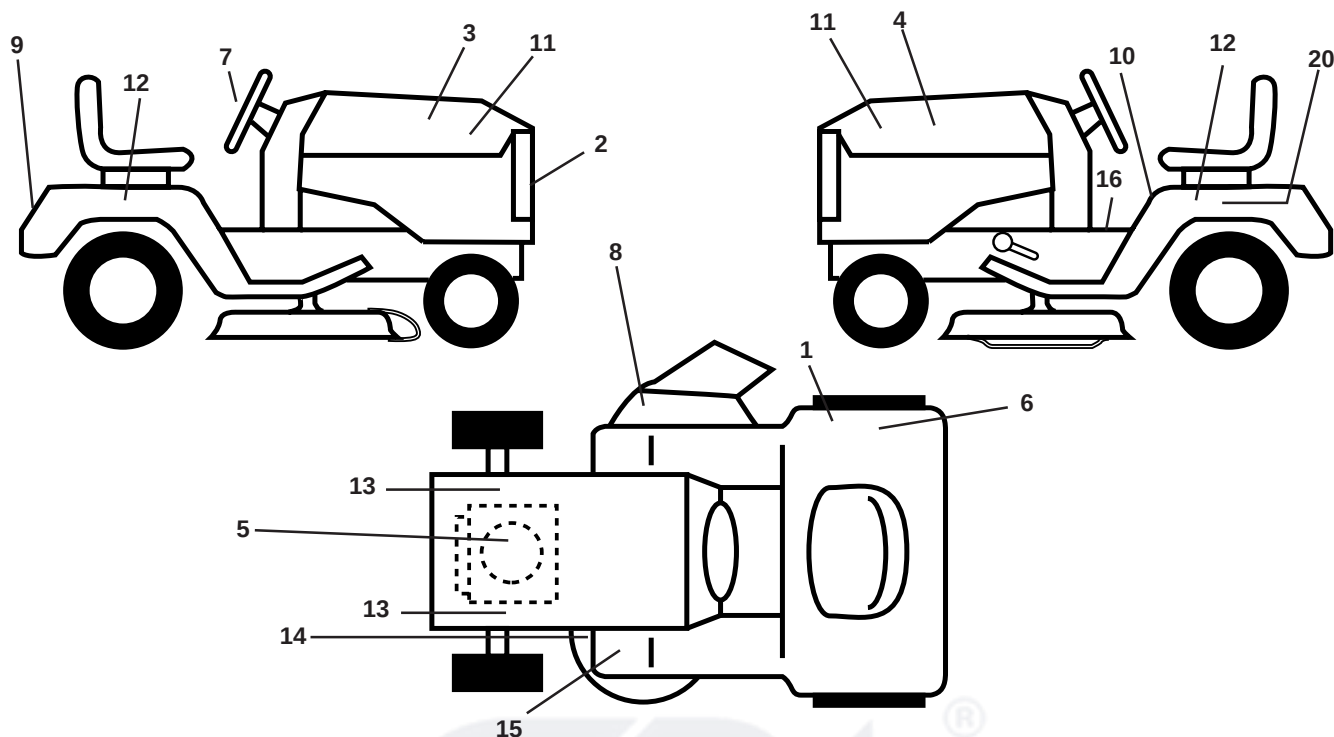
DESCRIPTION

13	532121248	Bushing Snap Blk Nyl 50 Id
14	872050412	Bolt Rdhd Sqnk 1/4-20x1-1/2
15	532134300	Spacer Split 28x96 Yel Zinc
16	532121250	Spring Cprsn 1 327 Blk Pnt
17	532123976	Nut Lock 1/4 Lge Flg Gr 5 Zinc
21	532153236	Bolt Shoulder 5/16-18 Unc
22	873800500	Nut Hex Lock W/Ins 5/16-18
24	819171912	Washer 17/32 X 1-3/16 X 12 Ga.
25	532127018	Bolt Shoulder 5/16-18 X 62

NOTE: All component dimensions given in U.S. inches.
1 inch = 25.4 mm

R

DECALS



KEY NO.	PART NO.	DESCRIPTION
1	532126187 *	Decal 100 DBA
2	532152262 *	Decal Grille Jonsered Sweden
3	532157700	Decal Hood RH
4	532157701	Decal Hood LH
5	532273212 *	Decal HP Engine
6	532145437 *	Decal Europe Stand CE
7	532152252 *	Decal, Ins. Strg Whl. Jons.
8	532145494 *	Decal Mower Cutting
9	532141761 *	Decal Fender Jonsered
10	532145498 *	Decal Read Owner's Manual Syms.
11	532162927 *	Decal Hood Insert
12	532156764 *	Decal Fender Auto
13	532159736 *	Decal Chassis Hot Muffler
14	532160396 *	Decal V-Belt Schematic
15	532159737 *	Decal Brake/Clutch Symbol Lt
16	532140837 *	Decal Saddle Brake Parking
20	532145005 *	Decal Bat Dan/Psn

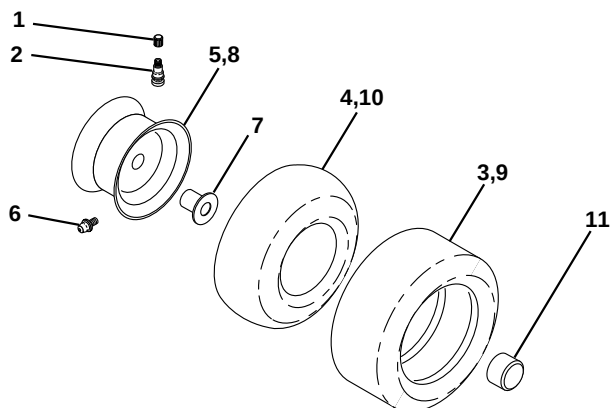
KEY NO.	PART NO.	DESCRIPTION
--	532154515	Pad Footrest LH STLT
--	532154516	Pad Footrest RH STLT
--	532138311 *	Decal Handle Lift Height Adjust
--	532142341 *	Decal Drawbar Cntrl Mvt Hyd Lt
--	532162598	Decal Drawbar Load Limit
--	532162500	Manual Operator's (Euro.)
--	532162501	Manual Operator's (Scan.)

*Note: Not in stock, but can be delivered directly from factory.

Available accessories not included with tractor:

--	LSB42	42" Snow Blade
--	CE42	Grass Catcher
--	LC05	Wheel Weights
--	LSB48	Snow Blade
--	LCO6	Tire Chain
--	Mk420	Mulch Kit w/Blades

WHEELS & TIRES



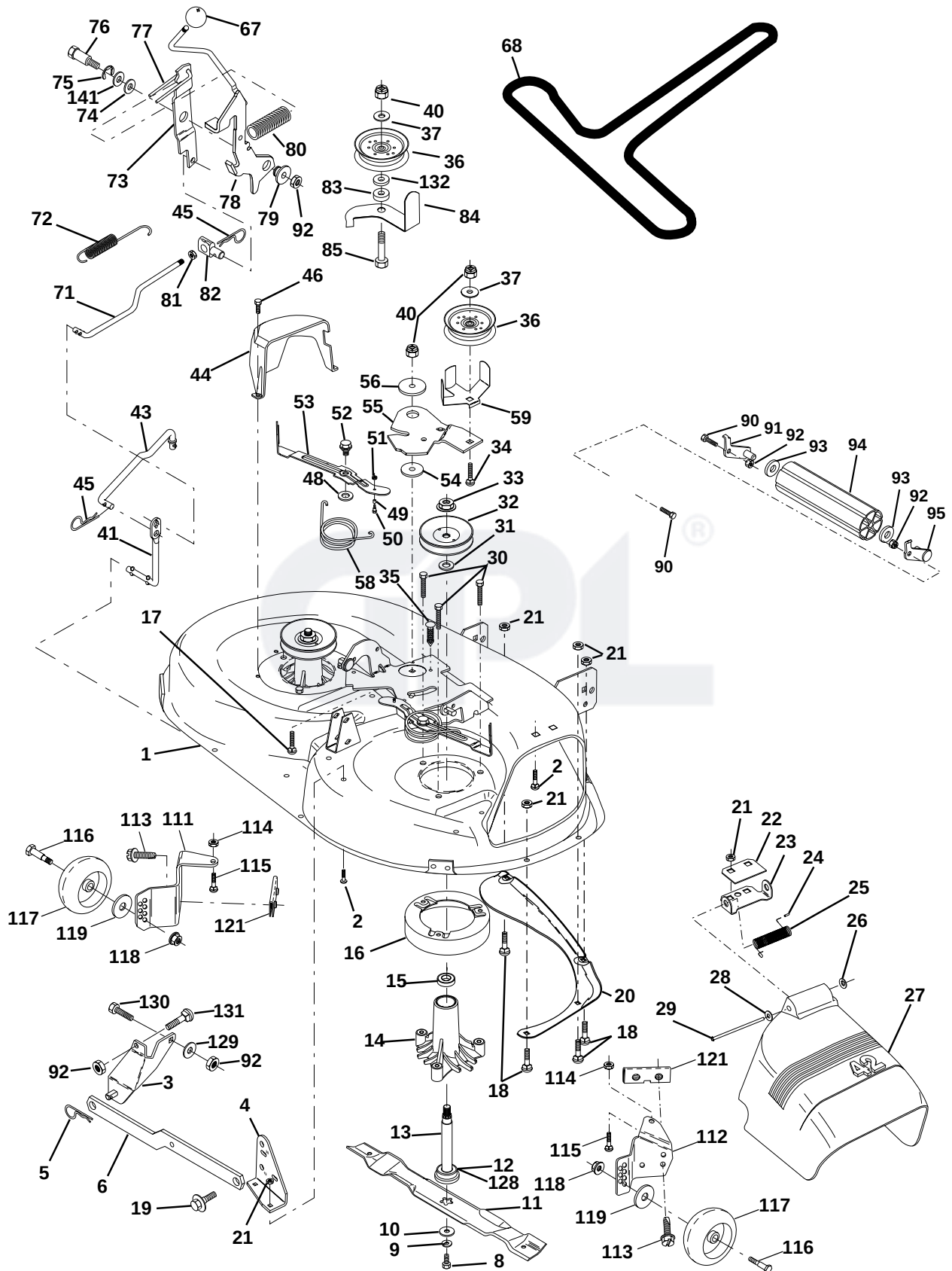
KEY NO.	PART NO.	DESCRIPTION
1	532059192	Cap Valve Tire
2	532065139	Stem Valve
3	532106222	Tire F Ts 15 X 6 0 - 6 Service
4	532059904	Tube Front (Service Item Only)
5	532138336	Rim Asm 6"front Silver Service
6	532124957	Fitting Grease (Front Wheel Only)
7	532124959	Bearing Flange (Front Wheel Only)
8	532138337	Rim Asm 8"rear Silver Service
9	532122082	Tire R Ts 20x10-8 C Service
10	532124926	Tube Rear (Service Item Only)
11	532104757	Cap Axle Blk 1 50 X 1 00

*NOTE: All component dimensions given in U.S. inches

1 inch = 25.4 mm

M

MOWER DECK



M

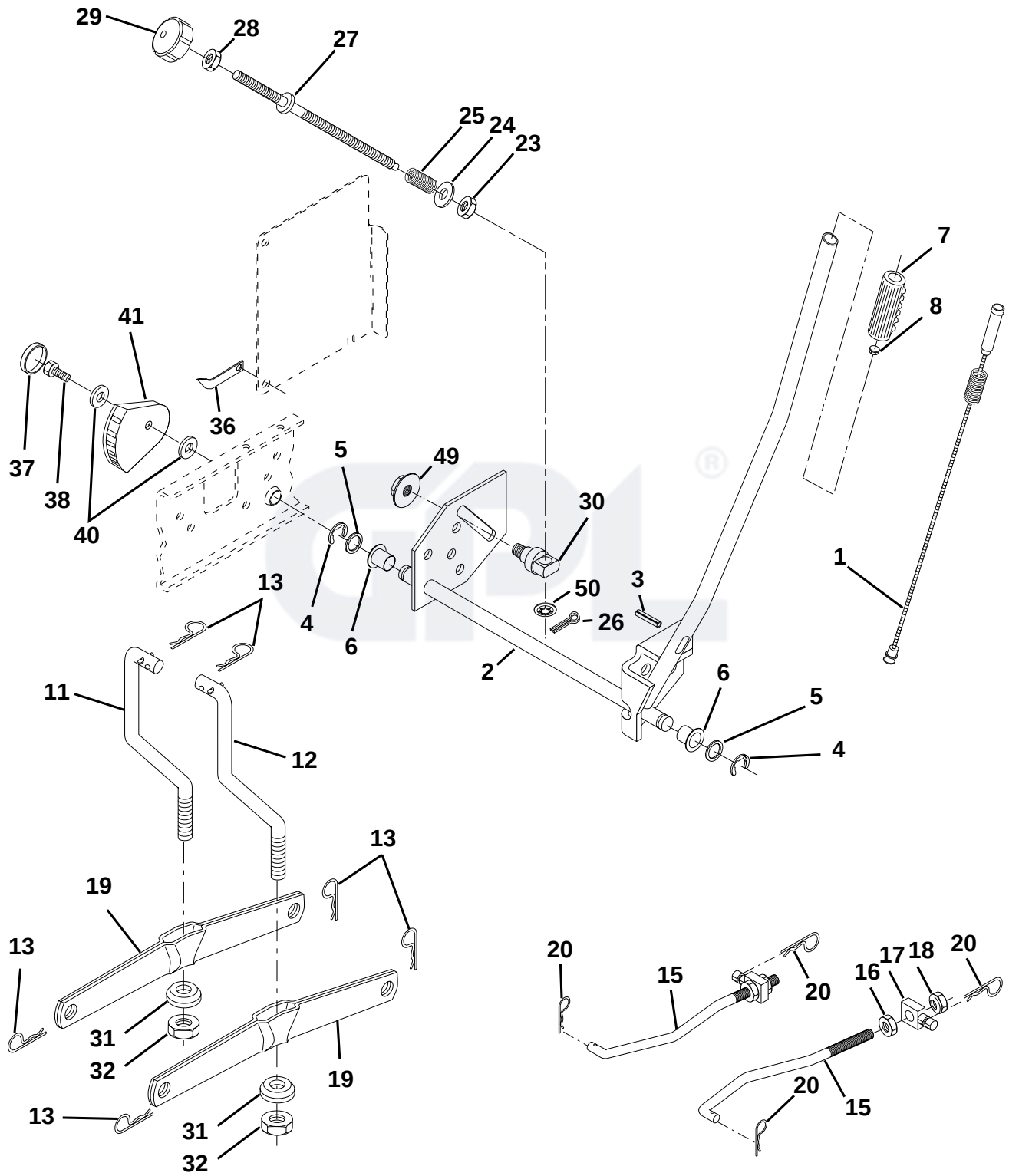
MOWER DECK

KEY NO.	PART NO.	DESCRIPTION	KEY NO.	PART NO.	DESCRIPTION
1	532144393	Housing Asm Mower 42"94 T-Path	56	532122052	Spacer Retainer Pm Mower
2	872140506	Bolt Rdhd Sqnk 5/16-18unc X3/4	58	532140086	Spring Torsion Brakes
3	532138017	Bracket Asm Fr Sway Bar 38/42	59	532141043	Guard, Belt
4	532138440	Bracket Asm Deck 42"sway Bar	67	532162132	Knob Rd 7/16-14 Plstc Thds Blk
5	532124670	Retainer Spring	68	531013141	V-Belt Mower
6	532130832	Arm Suspension Rear	71	532142427	Rod Clutch Primary 38/42
8	532850857	Bolt 3/8-24x1 25 Gr8 Patched	72	532131870	Spring Return
9	810030600	Washer Lock Hvy 3/8 Unplated	73	532127847	Arm Clutch Secondary
10	532140296	Washer Hard Blade Mower Vented	74	532121748	Washer 25/32 X 1-5/8 X 16 Ga
11	531013134	Blade Mower High Lift"	75	812000029	Ring Klip #5304-75
12	532129895	Bearing Ball #6204 (Mandrel)	76	532128903	Bolt shoulder
13	532137645	Shaft Asm W/lower Bearing	77	532127845	Keeper Spring 4 000
14	532128774	Housing Mandrel Vented(machd)	78	532160570	Lever Asm Clutch Primary
15	532110485	Bearing Ball Mandrel	79	532127498	Bushing 747 OD X 794 Lg Brass
16	532140329	Stripper Round Mower	80	532153701	Spring Clutch Mower
17	872110610	Bolt Rdhd Sqnk 3/8-16 X 2-1/4	81	873350600	Nut Hex Jam 3/8-16
18	872140505	Bolt Carr 5/16-18 X 5/8	82	532142028	Trunnion Adj94
19	532132827	Bolt Shoulder	83	532120958	Washer Sintered
20	532136888	Baffle Vortex 42	84	532156084	Keeper Belt
21	873680500	Nut Crown Lock 5/16-18	85	872140618	Bolt Fin Hex 3/8-16 UNC x 1 Gr. 5
22	532134753	Stiffener Bracket 42"deck	90	874760616	Bolt Fin Hex 3/8-16unc X 1
23	532131267	Bracket Deflector Mower 42"	91	532132274	Bracket Asm Noseroller LH
24	532105304	Cap Sleeve 80x 112 Blk Mower	92	873800600	Nut Lock Hex w/ins. 3/8-16 UNC
25	532123713	Spring Torsion Deflector 2 52	93	819171416	Washer 17/32 X 7/8 X 16 Ga
26	532110452	Nut Push Phos & Oil	94	532132264	Roller Nose 38 & 42
27	532130968	Shield Deflector	95	532132273	Bracket Asm Noseroller RH
28	819111016	Washer 11/32 X 5/8 X 16 Ga	111	532155197	Bracket Gauge Wheel Lh
29	532131491	Rod Hinge 42"6 75 Wlg	112	532155198	Bracket Gauge Wheel Rh
30	532157722	Screw Thdrol Washer Head	113	817490512	Screw Thdrol 5/16-18 x 3/4
31	532129963	Washer Spacer Mower Vented	114	873510500	Nut Keps 5/16-18 UNC
32	532153535	Pulley Mandrel	115	872110504	Bolt Carriage 5/16-18unc x 1/2
33	532137266	Nut 9/16top Lock Flng Cntr	116	532146851	Bolt Shoulder
34	872110614	Bolt RDHD 3/8-16 UNC x 2-3/4 Gr.5	117	532146850	Wheel Gauge Medium
35	532133835	Fastner Christmas Tree	118	873930600	Nut Centerlock 3/8-16 UNC
36	532131494	Pulley Idler Flat 3 060	119	819121414	Washer 3/8 x 7/8 x 14 Ga.
37	819131316	Washer 13/32 X 13/16 X 16 Ga	121	532143723	Bracket Extruded Gauge Wheel
40	873680600	Nut Lock 3/8-16 Unc	128	532153390	Washer Felt
41	532133551	Rod Pivot W/nibs	129	819131312	Washer 13/32 x 13/16 x 12 Ga.
43	532140083	Rod Clutch Secondary W/nibs	130	874780616	Bolt Fin Hex 3/8-16 UNC x 1 Gr. 5
44	532140088	Guard Mandrel LH Black	131	872140608	Bolt Rdhd Sqnk 3/8-16 x 1
45	532124788	Spring Retainer 1" Zinc/cad	132	819132203	Washer 13/32 X 1-3/8 X 3 Ga.
46	532137729	Screw Thdrol 1/4-20x5/8	141	532124931	Washer Thrust .75 x 1.230
48	532133944	Washer Hardened Samller	--	532144783	Deck Serv 42" Elec Vent (Standard Deck - Order Nose Roller, Gauge Wheel and Mulcher Plate components separately Key Nos. 90-95, 101-106 and 111-121)
49	532155066	Roller Asm Cam Follower 42" dec	--	532130794	Mandrel Assembly (Includes Key Numbers 8-10, 12-15, 31 and 33)
50	532131340	Bolt Shldr 10-24 Zinc Gr 5 42"			
51	532069180	Nut Lock #10-24 Unc			
52	532139888	Bolt Shoulder 5/16-18 Unc Blkz			
53	532157388	Arm Asm Pad Brake			
54	532133943	Washer Hardened			
55	532155046	Arm Idler 42"mower LT/YT			

NOTE: All component dimensions given in U.S. inches
1 inch = 25.4 mm

O

MOWER LIFT



MOWER LIFT

KEY NO.	PART NO.	DESCRIPTION
1	532159460	Wire Asm Inner W/plunger
2	532159471	Shaft Asm Lift RH
3	532105767	Pin Groove 1 500 Zinc
4	812000002	E Ring #5133-62
5	819211621	Washer 21/32 X 1 X 21 Ga
6	532120183	Bearing Nylon Blk 629 Id
7	532125631	Grip Handle Flute Blk.
8	532124526	Button Plunger Black
11	532139865	Link Lift LH Fixed Length
12	532139866	Link Lift RH Fixed Length
13	532124670	Retainer Spring
15	532127218	Link Front
16	873350800	Nut Jam Hex 1/2-13 Unc
17	532130171	Trunnion Blk Zinc
18	873800800	Nut Lock W/wsh 1/2-13unc
19	532139868	Arm Suspension Rear
20	532124660	Retainer Spring
23	532110807	Nut Special
24	819131016	Washer 13/32 X 5/8 X 16 Ga
25	532124874	Spring 2-1/8"
26	876020308	Pin Cotter 3/32 X 1/2
27	532126971	Rod Adj Lift Zinc 7.49 Wrk Lg
28	873350600	Nut Hex Jam 3/8-16 Unc
29	532138057	Knob Inf 3/8-16 Unc Blk W/sym
30	532150233	Trunnion Dp Stop Dbl Thds PLT
31	532140302	Bearing Pvt Lift Spherical
32	873540600	Nut Crownlock 3/8-24
36	532155097	Pointer Pnt Height ind .505
37	532123935	Plug Hole Blk 1.485/1.515 Dia.
38	817490512	Screw Thdrol 5/16-18 x 3/4
40	819112410	Washer 11/32 x 1-1/2 10 Ga.
41	532155098	Scale Ind. Height Blk.
49	532145212	Nut Hex Flange Lock
50	532110452	Nut Push Phos & Oil

NOTE: All component dimensions given in U.S. inches
1 inch = 25.4 mm