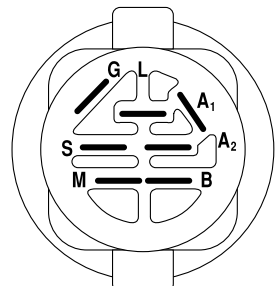
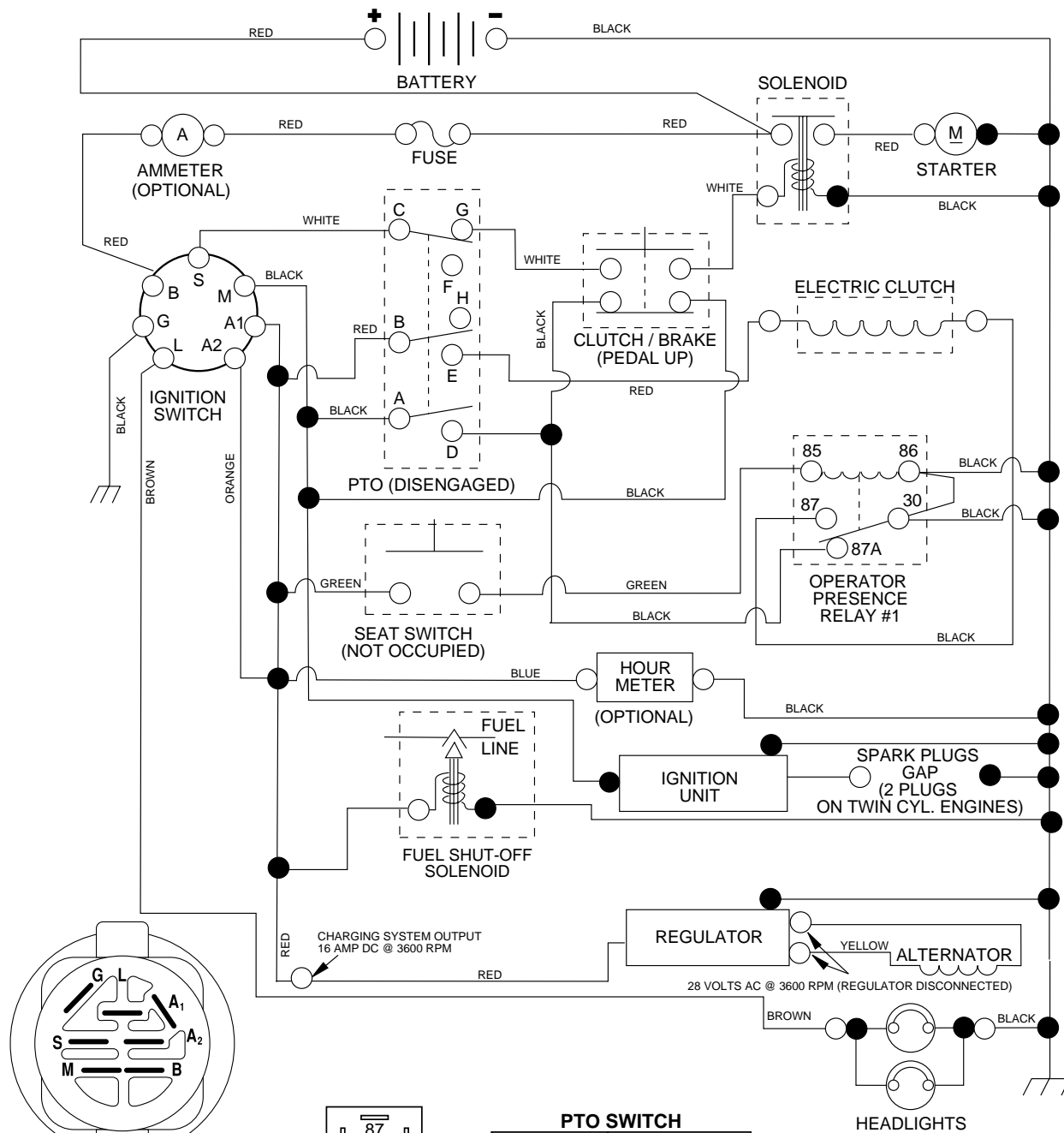


TRACTOR - - MODEL NUMBER PRGT22H50A

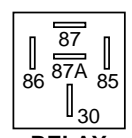
SCHEMATIC



IGNITION SWITCH

POSITION	CIRCUIT	"MAKE"
OFF	M + G + A1	NONE
ON + LIGHTS	B + A1	L + A2
ON	B + A1	NONE
START	B + S + A1	NONE

WIRING INSULATED CLIPS
NOTE: IF WIRING INSULATED CLIPS WERE REMOVED FOR SERVICING OF UNIT, THEY SHOULD BE REPLACED TO PROPERLY SECURE YOUR WIRING.



RELAY

PTO SWITCH

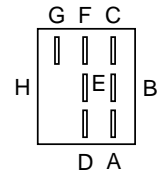
POSITION	CIRCUIT
OFF	C + G, B + H
ON	C + F, B + E, A + D



REMOVABLE CONNECTIONS



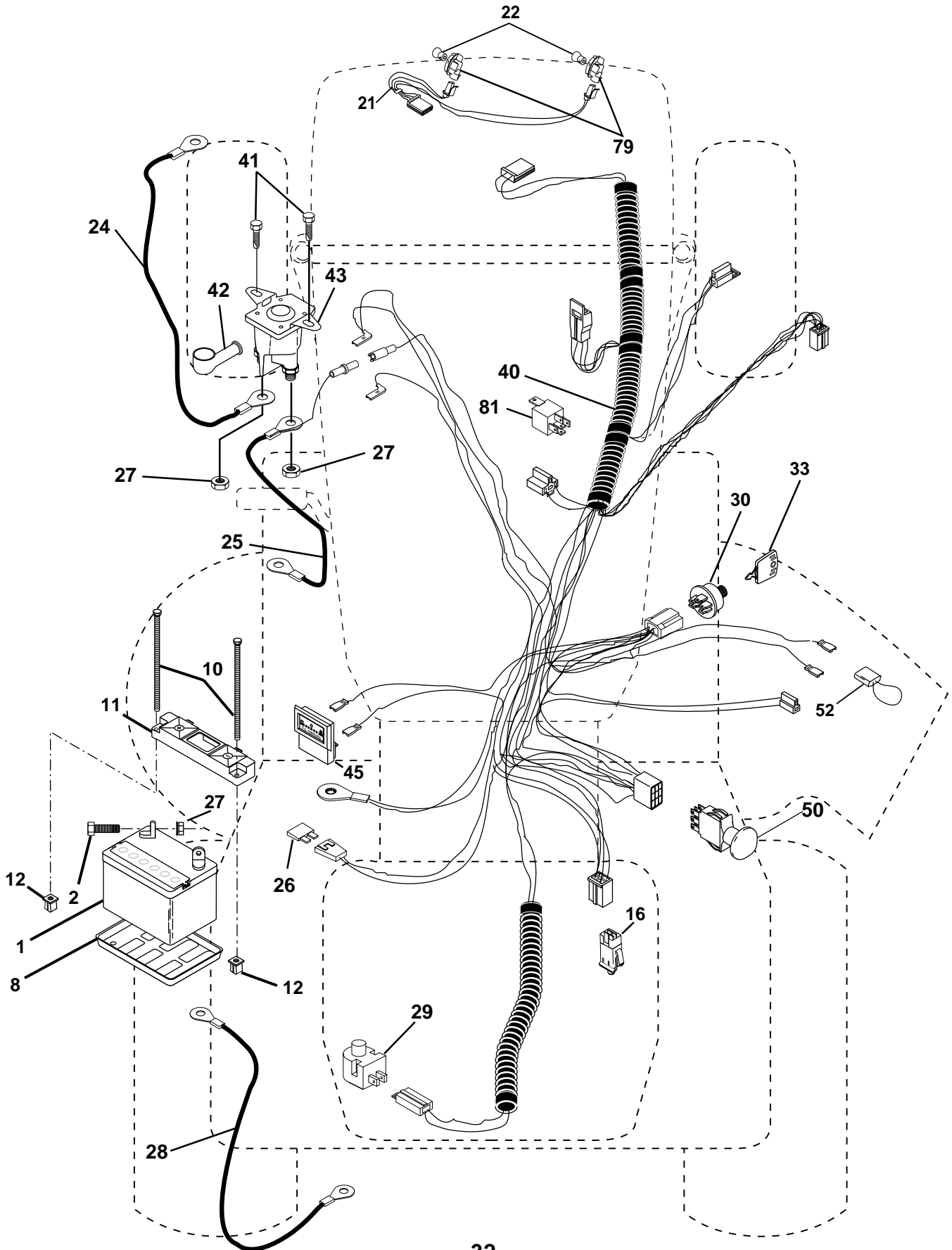
NON-REMOVABLE CONNECTIONS



REPAIR PARTS

TRACTOR - - MODEL NUMBER PRGT22H50A

ELECTRICAL



REPAIR PARTS

TRACTOR - - MODEL NUMBER PRGT22H50A

ELECTRICAL

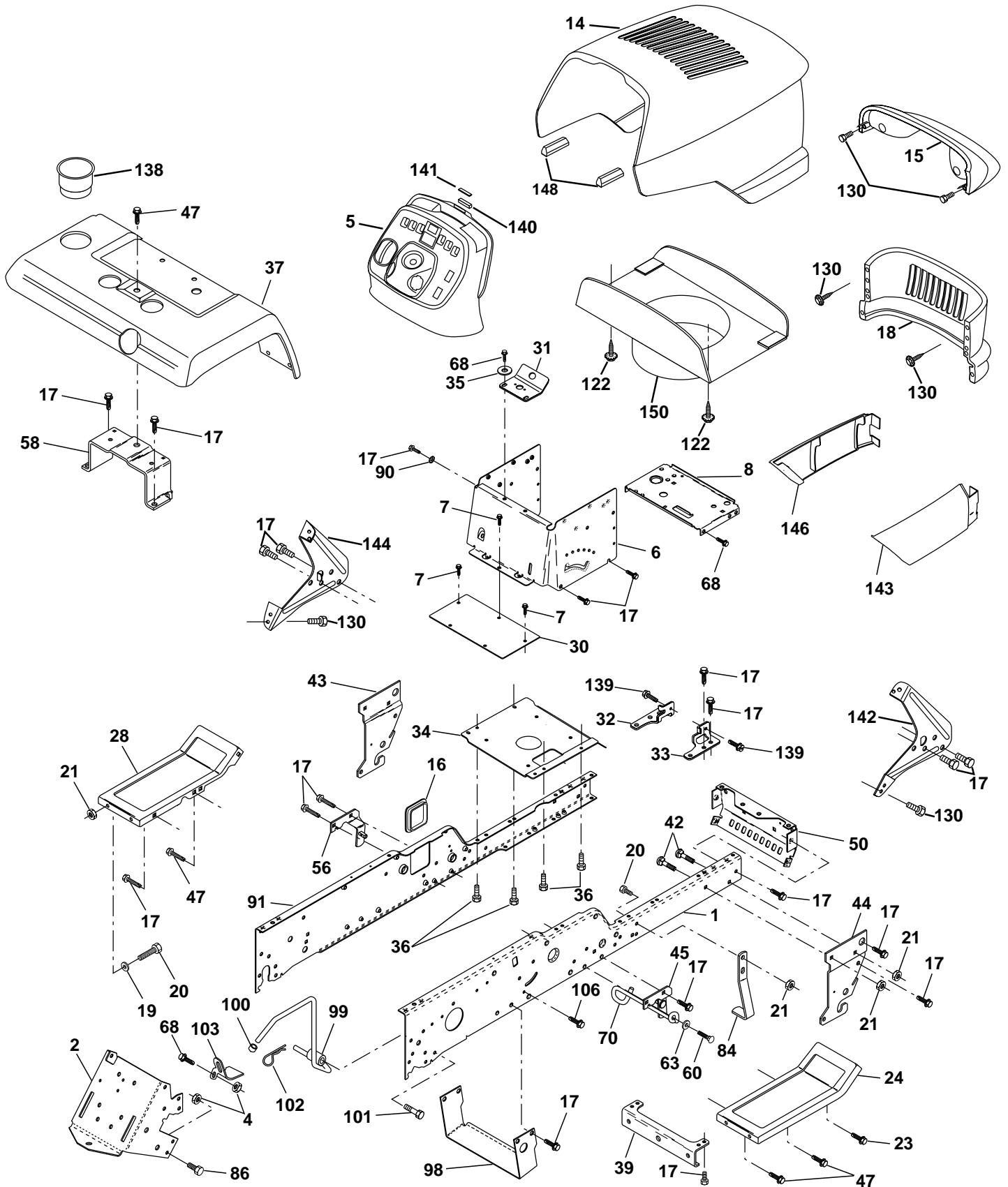
KEY NO.	PART NO.	DESCRIPTION
1	144926	Battery
2	74760412	Bolt Hex Head 1/4-20 x 3/4
8	7603J	Tray, Battery
10	145211	Bolt Btr Frt 1/4-20 X 7.5 zinc
11	150109	Holdown Battery Front Mount
12	145769	Nut Push Nylon 1/4"
16	153664	Switch Interlock Push-In
21	166184	Harness Headlight
22	4152J	Bulb Light
24	4206J	Cable, Battery
25	146149	Cable, Battery
26	108824X	Fuse
27	73510400	Nut Keps Hex 1/4-20 Unc
28	170697	Cable, Ground
29	160784	Switch, Plunger
30	175566	Switch, Ign
33	140401	Key
40	170238	Harness, Ignition
41	17720408	Screw 1/4-20 x 1/2
42	131563	Cover, Terminal Red
43	175141	Solenoid
45	122822X	Ammeter
50	174653	Switch, PTO
52	141940	Protection Wire Loop
79	163996	Socket, Light Bulb
81	109748X	Relay Asm.

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

REPAIR PARTS

TRACTOR - - MODEL NUMBER PRGT22H50A

CHASSIS AND ENCLOSURES



REPAIR PARTS**TRACTOR - - MODEL NUMBER PRGT22H50A****CHASSIS AND ENCLOSURES**

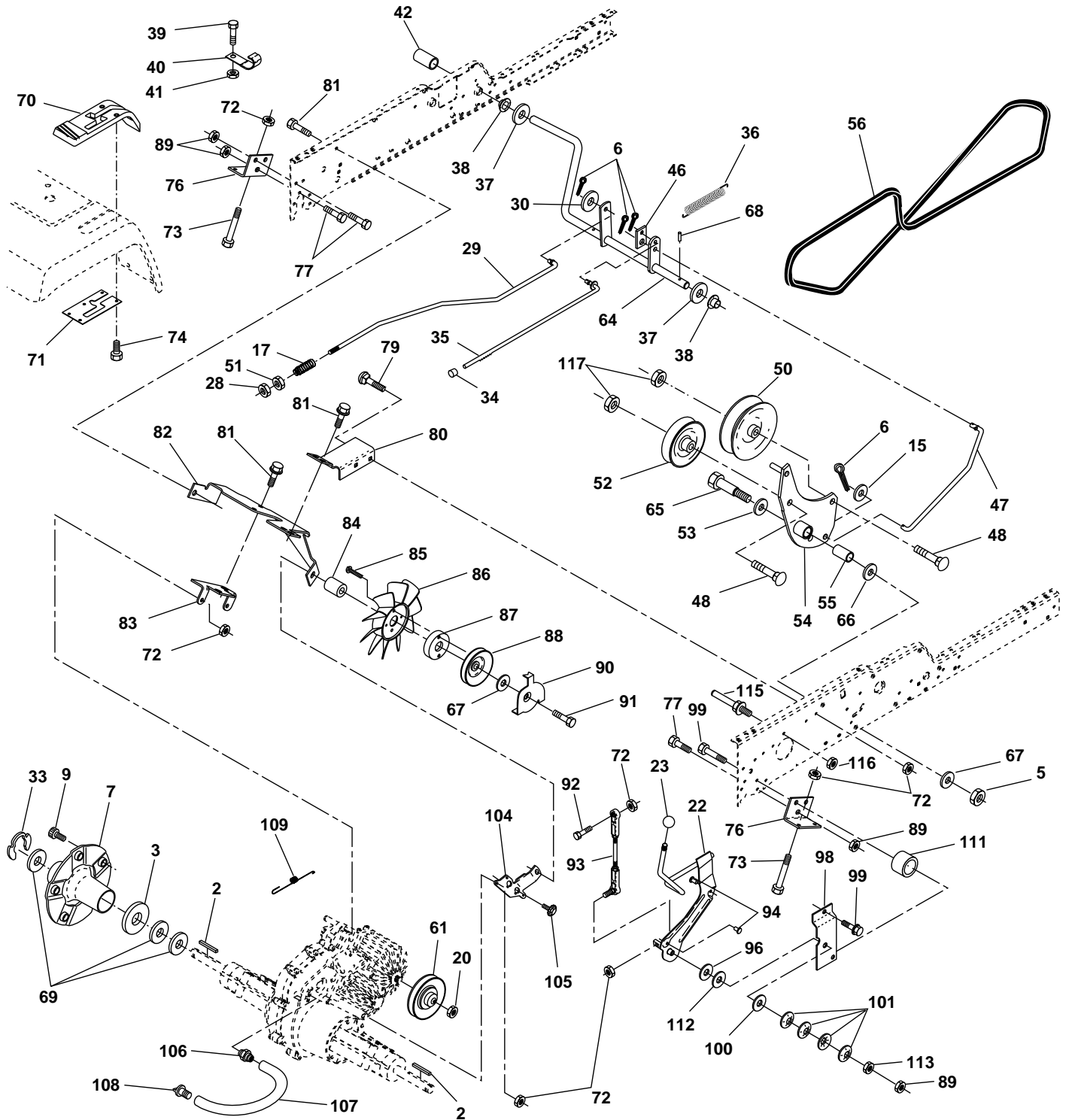
KEY NO.	PART NO.	DESCRIPTION	KEY NO.	PART NO.	DESCRIPTION
1	175465	Rail, Frame RH	56	154914	Bracket Asm., Susp Chassis Lh
2	175282	Drawbar, Gt	58	175315	Bracket Asm., Fender
4	73680700	Nut, Crownlock 7/16-14Unc	60	17060620	Screw Thdrol 3/8-16 x 1-1/4
5	163976X428	Dash	63	19131614	Washer 13/32 x 1 x 14 Ga.
6	157882	Dash Asm., Lower	68	17490508	Screw, Thd 5/16-18 x 1/2
7	17720408	Screw, Thd Cut 1/4-20 x 1/2	70	137159	Guide, Belt Mid Span
8	145166	Support, Battery	84	142992	Stop, Over Center Mower
14	175259X428	Hood Asm., Pnt	86	74760716	Bolt, Fin Hex 7/16-14 Unc x 1
15	160568	Lens, Asm Headlight bar	90	11050600	Washer, Lock External Tooth 3/8
16	121794X	Cover, Access	91	175464	Rail, Frame Lh
17	17060612	Screw, 3/8-16 x 3/4	98	140503	Bracket Skid Chassis
18	175289	Grille	99	140871	Rod By Pass
19	19131312	Washer 13/32 x 13/16 x 12 Ga.	100	71673	Cap Parking Brake Rod
20	74760616	Bolt, Fin Hex 3/8-16 x 1	101	17490628	Screw Thdrol 3/8-16 x 1-3/4
21	73680600	Nut, Crownlock 3/8-16 Unc	102	4497H	Retainer, Spring
23	17060616	Screw 3/8-16 x 1	103	142273	Lock, By Pass
24	145243X428	Footrest, RH	106	138776	Bolt 5/16-18 Type TT
28	145244X428	Footrest, LH	122	161464	Screw Hex Wshd 8-18 x 7/8
30	145052	Saddle, Hydro 1995	130	164863	Screw HWHD Hi-Lo #13-16 x 3/4
31	161419	Bracket, Supt 1-pc VGT Steering	138	163975X428	Cupholder YTGT
32	161327	Bracket, Pivot Chassis LH	139	171873	Bolt Shoulder 5/16-18 TT
33	161326	Bracket, Pivot Chassis RH	140	163806	Magnet YTGT
34	177018	Plate Asm. Engine Chassis	141	163805	Stricker Plate YTGT
35	19111116	Washer 11/32 x 11/16 x 16 Ga.	142	161897	Bracket Dash RH
36	17060512	Screw 5/16-18 x 3/4	143	169847X428	Skirt Grill RH
37	167287X428	Fender, Pnt.	144	161900	Bracket Dash LH
39	175278	Bracket, Axle Front	146	169848X428	Skirt Grill LH
42	72140608	Bolt, Carriage 3/8-16 x 1	147	164863	Fastener Nutpal
43	136939	Bracket, Spnsn Front Lh	148	164655	Extrusion Bumper
44	136940	Bracket, Spnsn Front Rh	150	161237	Duct Heat Hood
45	154913	Bracket Asm., Susp Chassis Rh			
47	17670608	Screw Thdrol 3/8-16 x 1/2 TYT			
50	175476	Bracket, Chassis Front			
52	STD541431	Nut, Crownlock 5/16-18			

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

REPAIR PARTS

TRACTOR - - MODEL NUMBER PRGT22H50A

GROUND DRIVE



REPAIR PARTS**TRACTOR - - MODEL NUMBER PRGT22H50A****GROUND DRIVE**

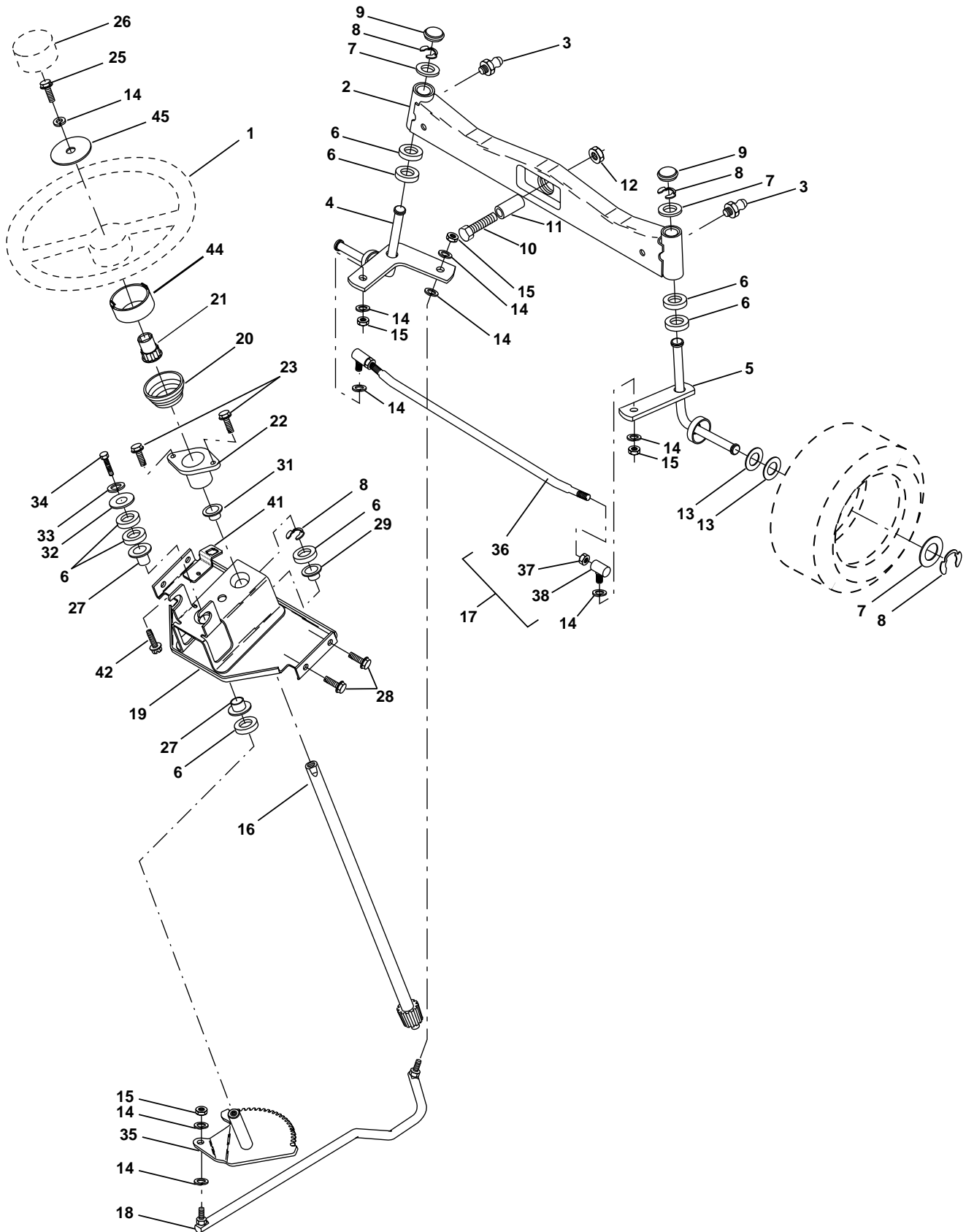
KEY NO.	PART NO.	DESCRIPTION	KEY NO.	PART NO.	DESCRIPTION
2	7070E	Key 1/4 x 2.5	72	73680500	Nut Crownlock 5/16-18
3	7563R	Washer Thrust Axle Harden	73	74490548	Bolt Hex FLGHD 5/16-18 x 3 Gr. 5
5	73680600	Nut Crownlock 3/8-16	74	142432	Screw Hex Wsh. Hi-Lo 1/4-1/2
6	76020412	Pin Cotter 1/8 x 3/4	76	140481	Bracket Transaxle
7	140507	Wheel Hub Asm.	77	74760716	Bolt Fin Hex 7/16-14 x 1
9	140080	Bolt Hub	79	72110505	Bolt Carriage 5/16-18 x 5/8
15	19131316	Washer 13/32 x 13/16 x 16 Ga	80	140484	Bracket Torque RH
17	140921	Spring Rod Brake	81	17060612	Screw 3/8-16 x 3/4
20	73940800	Nut Hex Jam Toplock 1/2-20 UNF	82	150586	Bracket Mount Torque/Fan
22	156103	Shift Arm Asm	83	140479	Strap Torque Mid
23	140845	Knob	84	140490	Spacer
28	73350600	Nut	85	17541020	Screw #10-24 x 1-1/4
29	140494	Brake Rod	86	140462	Fan 7" Hydro
30	19131616	Washer 13/32 x 1 x 16 Ga.	87	140491	Adapter Fan
33	12000053	Ring E	88	161592	Pulley Idler
34	71673	Cap Plunger	89	73680700	Nut Crownlock 7/16-14 UNC
35	137648	Rod Parking Brake	90	140489	Keeper Belt
36	149412	Spring Drive Ground	91	17490644	Screw Thdrol 3/8-16 x 2-3/4
37	121749X	Washer 25/32 x 1-1/4 x 16 Gauge	92	74760520	Bolt Fin Hex 5/16-18 x 1.25
38	150035	Nyliner, Bushing	93	140502	Link Shift Asm
39	74321016	Screw Fin #10-24 x 1	94	133835	Fastner Christmas Tree
40	5304J	Actuator Interlock Switch	96	141103	Washer Nickel Plated
41	73931000	Nut Lock #10-24	98	141004	Bracket Shift
42	123533X	Cover Pedal	99	17060624	Screw 3/8-16 x 1-1/2
46	145170	Retainer Spring	100	126881X	Washer Compression
47	138228	Clutch Rod	101	156106	Washer Bellville
48	72110612	Bolt Carriage 3/8-16 x 1-1/2 Gr 5	104	140480	Bracket Idler
50	131494	Pulley Idler Flat	105	17580408	Screw Tap 1/4-20 x 1/2
51	73800600	Nut Crownlock 3/8-16 UNC	106	142918	O-Ring Asm. Hydro Ger 70110
52	139123	Pulley Idler Grooved	107	154739	Line Fuel Hydro 15" Vgt Serv
53	207J	Washer Hardened	108	142917	Cap Asm Vent Hydro Gear 70109
54	161590	Arm Asm Idler Clutch 98	109	140929	Spring Return Brake
55	105706X	Bearing, Idler	111	156240	Spacer Shift Leer Vgth
56	140218	V-Belt	112	156104	Washer Nylon High Temp
61	140488	Pullery Transaxle	113	73220700	Nut, Hex Asf 7/16-14 UNC
64	154752	Shaft Asm Brake Parking Clutch	115	123405X	Keeper Belt T/A Gnd Dr. LR
65	67609	Bolt Shoulder	116	73900500	Nut Lock Hex Flange 5/16-18
66	140296	Washer Hardened	117	73900600	Nut Lock Flange 3/8-16 UNC
67	19131312	Washer 13/32 x 13/16 x 12 Ga	118	73800500	Nut Lock Hx W/Ins 5/16-18 UNC
68	5142H	Pin Roll	--	163198	Transaxle Hydro
69	123800X	Washer			
70	164892X428	Console Hydro Fender			
71	151179	Plate Console Shift			

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

REPAIR PARTS

TRACTOR - - MODEL NUMBER PRGT22H50A

STEERING ASSEMBLY



REPAIR PARTS**TRACTOR - - MODEL NUMBER PRGT22H50A****STEERING ASSEMBLY**

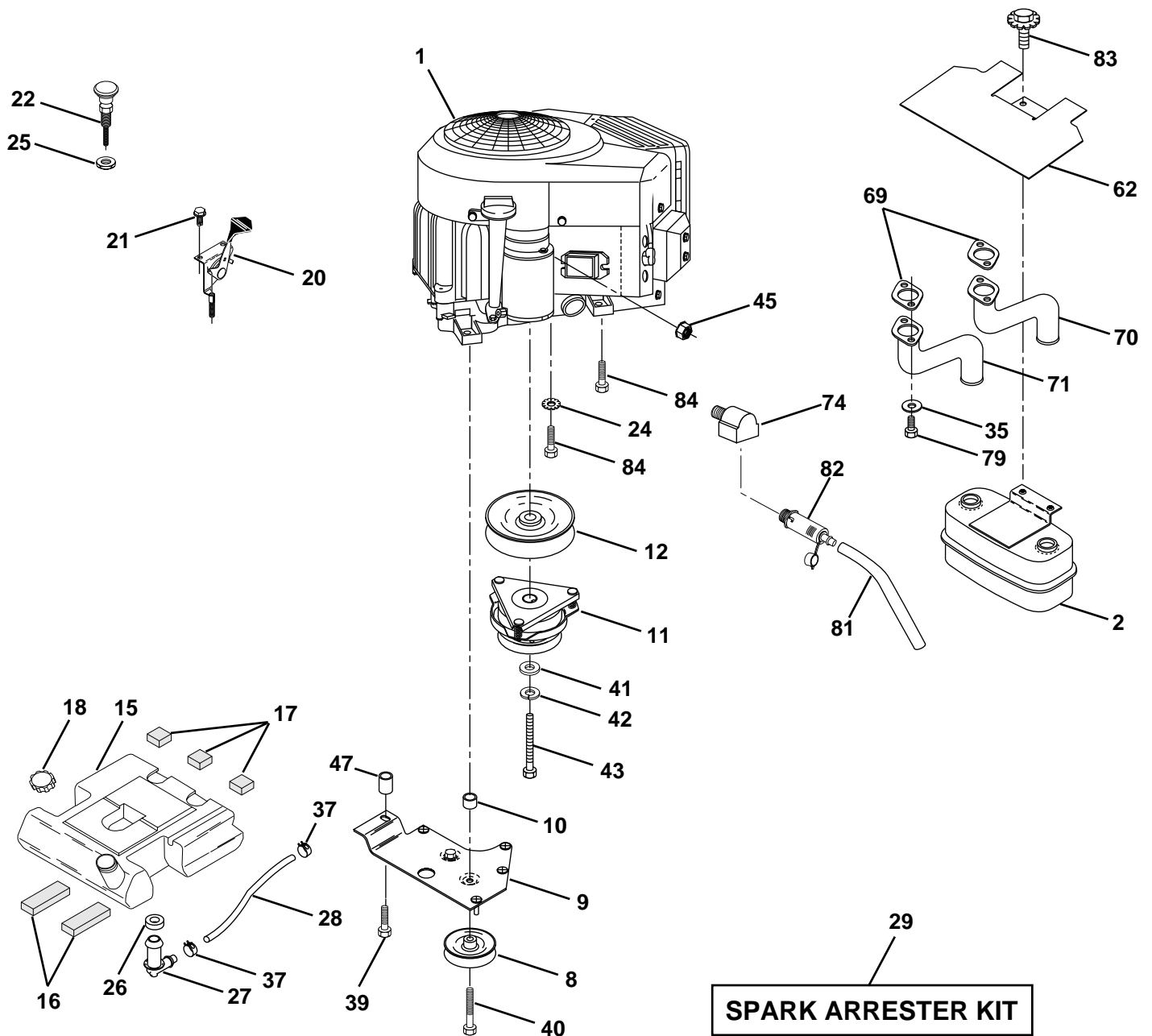
KEY NO.	PART NO.	DESCRIPTION
1	159944X428	Wheel, Steering
2	137094	Axle Asm., Front
3	6855M	Fitting, Grease
4	161849	Spindle Asm, LH
5	161848	Spindle Asm., RH
6	6266H	Bearing, Race Thrust Harden
7	121748X	Washer 25/32 x 1-5/8 x 16 Ga.
8	12000029	Ring, Klip #T5304-75
9	121232X	Cap, Spindle
10	74781044	Bolt, Fin Hex 5/8-11 x 2-3/4
11	136518	Spacer, Brg. Axle Front
12	73901000	Nut, Lock Flange 5/8-11 Unc
13	121749X	Washer 25/32 x 1-1/4 x 16 Ga.
14	10040600	Washer, Lock Hvy Hlcl Spr 3/8
15	7810H	Nut Lock Center 3/8-24 Unf
16	145103	Shaft Asm., Steering
17	176584	Rod Tie Service
18	137155	Draglink, Ball Joint Solid Vgt
19	156011	Support Asm., Steering Vgt
20	163887X428	Boot Steering Stealth
21	159945	Adapter, Wheel Steering
22	155105	Bushing, Strg.
23	152927	Screw
25	74780616	Bolt, Fin Hex 3/8-16 x 1 Gr. 5
26	159946X428	Insert Cap Strg WH
27	3366R	Bearing, Col. Strg.
28	17000612	Screw Hexwsh thdr 3/8-16 x 3/4
29	104239X	Bearing, Flange
31	138136	Bushing, Nyliner Snap
32	19111610	Washer 11/32 x 1 x 10 Ga.
33	10040500	Washer, Lock Hvy Hlcl Spr 5/16
34	74780412	Bolt, Hex Hd 5/16-18 x 3/4
35	138059	Gear, Sector Steering
36	176585	Tie Rod
37	73360600	Jam Nut RH Thread
38	109850X	Joint Asm. Ball RH Thread
41	155246	Bracket Switch Interlock Vgt 97
42	17490508	Screw Thdrol 5/16-18 x 1/2 Tyt
44	160135X428	Extension Steering
45	19132411	Washer 13/32 x 1-1/2 x 11 Ga.

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

REPAIR PARTS

TRACTOR - - MODEL NUMBER PRGT22H50A

ENGINE



REPAIR PARTS**TRACTOR - - MODEL NUMBER PRGT22H50A****ENGINE**

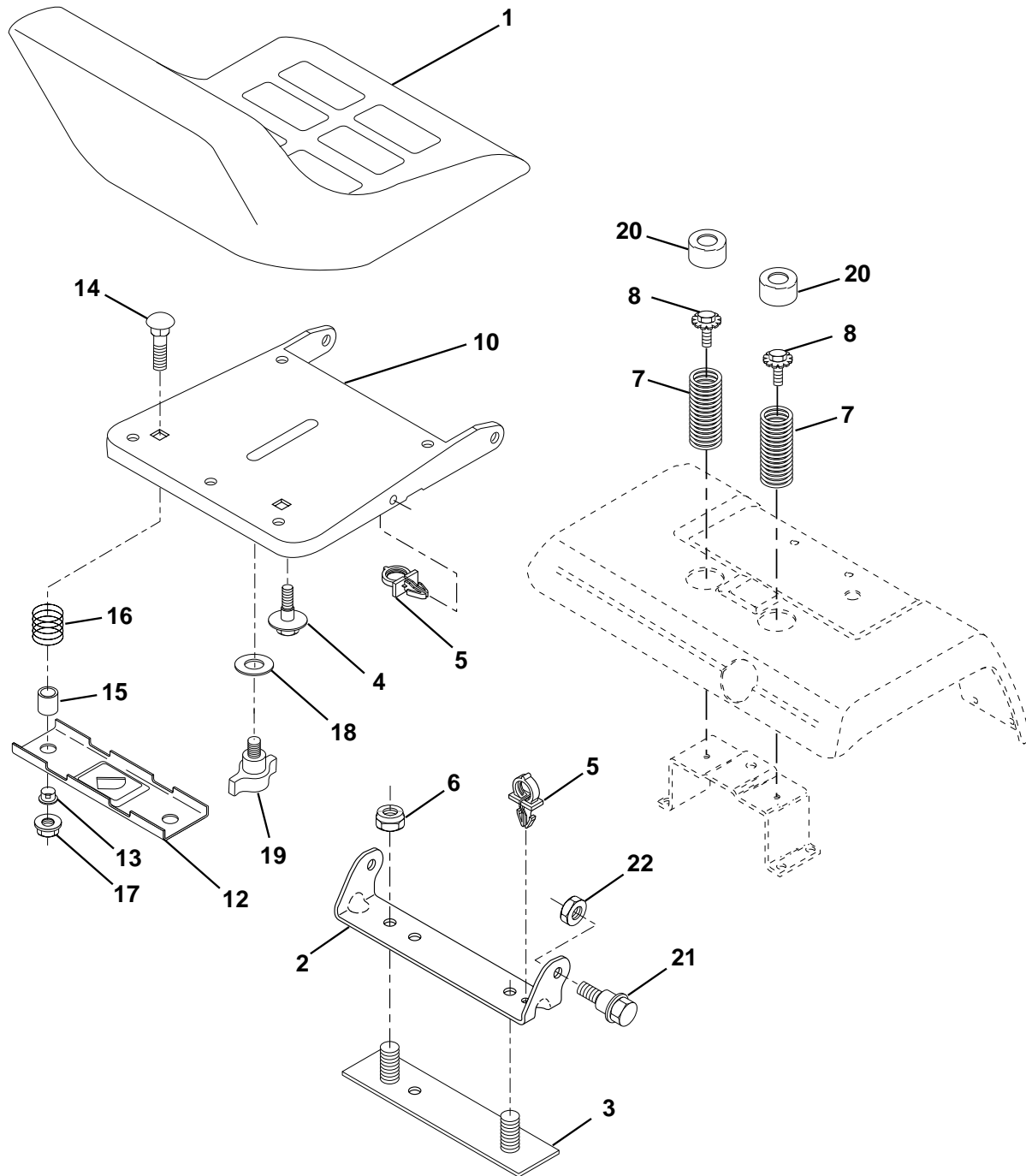
KEY NO.	PART NO.	DESCRIPTION
1	-----	Engine Briggs, Model No. 407777 (Order parts from engine manuf.)
2	149723	Muffler Side
8	121361X	Pulley V-Idler
9	150828	Keeper Asm. Belt Engine VGT
10	175287	Bushing
11	170056	Clutch Electric
12	143996	Pulley Engine VGT Elect Clutch
15	151346	Tank Fuel Rear 3.50
16	109227X	Pad Spacer
17	106082X	Pad Spacer
18	140527	Top Vented N/LANY
20	164067	Control Throttle
21	164863	Screw Hex Thd Cut 1/4 - 20 X 5/8
22	164068	Control Choke
24	11050600	Washer Ext Tooth 3/8
25	73920600	Nut Keps 3/8-24 Unf
26	3645J	Bushing
27	139277	Stem Tank Fuel
28	7834R	Fuel Line
29	137180	Spark Arrester Kit
35	10040500	Washer
37	123487X	Clamp Hose
39	17490636	Screw TT 3/8-16 x 2-1/4 UNC
40	17490664	Screw TT 3/8-16 x 4 UNC
41	126197X	Washer 1-1/2 OD X 15/32 ID X .250
42	10040700	Washer Lock 7/16
43	173937	Bolt Hex 7/16-20 X 4 Gr. 5
45	73510400	Nut Keps Hex 1/4-20
47	175288	Spacer
62	146629	Shield Heat Muffler CV-Intek
69	165391	Gasket
70	176069	Tube Exhaust LH
71	176070	Tube Exhaust RH
74	162295	Elbow Street Brass
79	71070512	Screw Hex Hd Cap 5/16-18 x 3/4
81	148456	Tube Drain Oil Easy
82	148315	Plug Oil Drain Easy
83	171877	Bolt 5/16-18unc X 1-3/4 W/Sems
84	17490624	Screw Thdrol 3/8-16 x 1-1/2

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

REPAIR PARTS

TRACTOR - - MODEL NUMBER PRGT22H50A

SEAT ASSEMBLY



KEY NO.	PART NO.	DESCRIPTION
1	173818	Seat
2	140551	Bracket, Pivot Seat
3	140675	Strap, Fender Asm.
4	127018X	Bolt, Shoulder 5/16-18 x .62
5	145006	Clip, Push-In Hinged
6	73800600	Nut, Crownlock 3/8-16
7	124181X	Spring, Seat Cprsn.
8	171877	Bolt 5/16-18 UNC x 3/4 w/Sems
10	174894	Pan, Seat
12	121246X	Bracket, Mounting Switch
13	121248X	Bushing, Snap
14	72050412	Bolt, Carriage 1/4-20 x 1-1/2

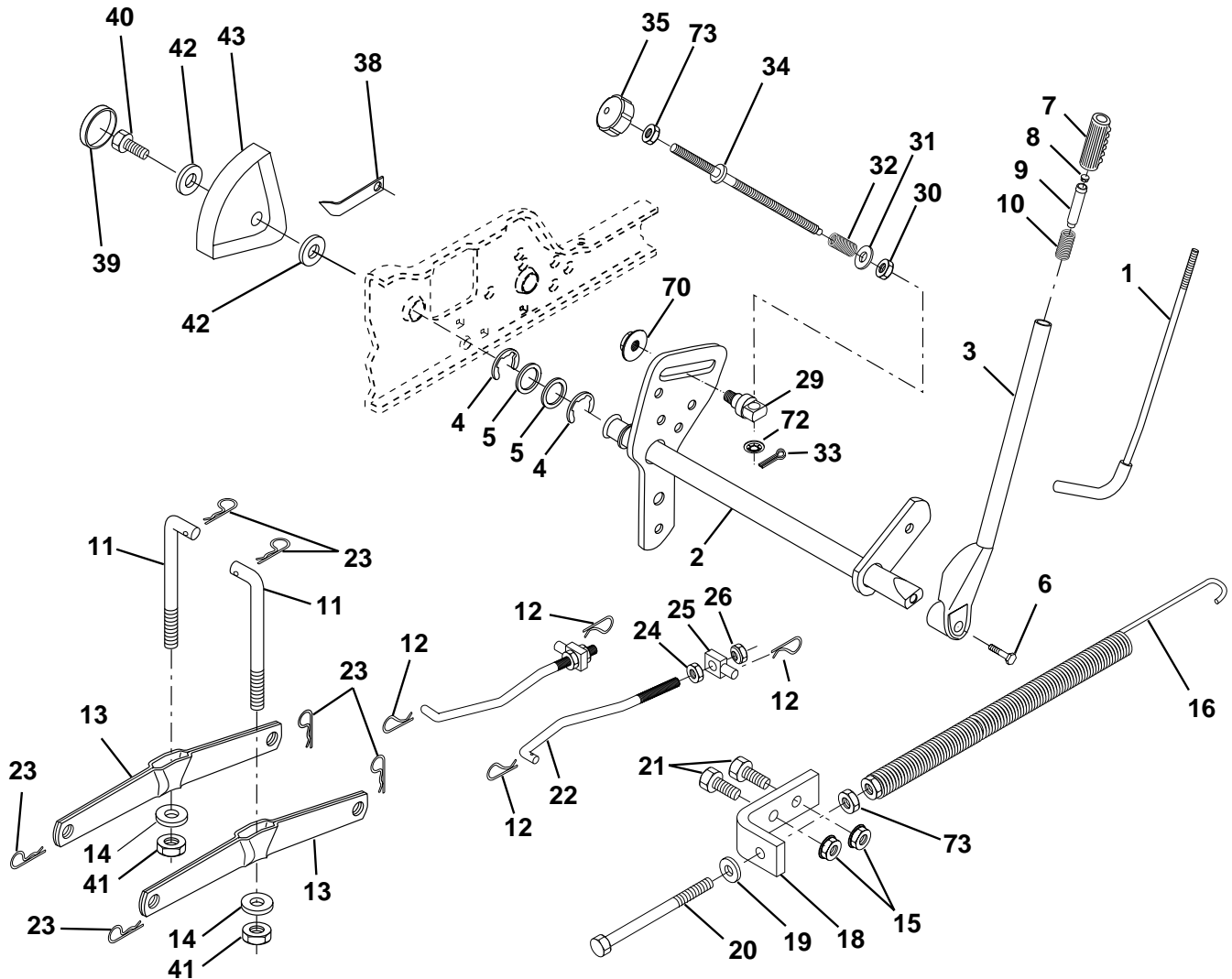
KEY NO.	PART NO.	DESCRIPTION
15	121249X	Spacer, Split
16	123740X	Spring, Cprsn.
17	123976X	Nut, Lock 1/4 Lg. Flg. Gr. 5
18	19171912	Washer 17/32 x 1-3/16 x 12 Ga.
19	166369	Knob, Seat
20	124238X	Cap, Spring Seat Blk
21	171852	Bolt 5/16-18 Unc-2A
22	73800500	Nut, Crownlock 5/16-18

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

REPAIR PARTS

TRACTOR - - MODEL NUMBER PRGT22H50A

LIFT ASSEMBLY



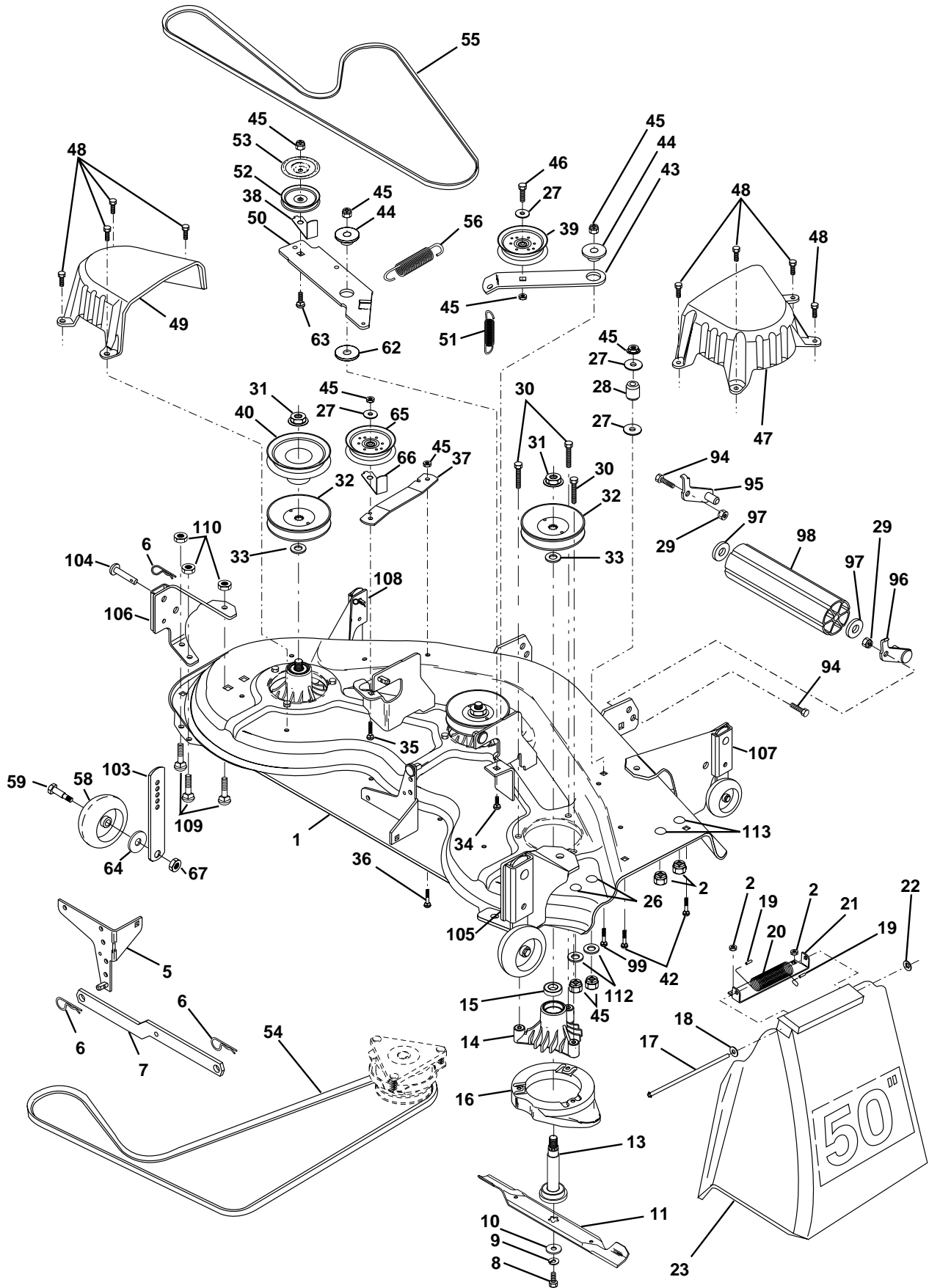
KEY NO.	PART NO.	DESCRIPTION	KEY NO.	PART NO.	DESCRIPTION
1	121006X	Rod Asm., Lever	23	4939M	Retainer, Spring
2	159187	Shaft Asm., Lift Vgt	24	73350800	Nut, Jam Hex 1/2-13 Unc
3	159189	Lever Asm., Lift Rh	25	130171	Trunnion
4	12000022	E-Ring Truarc#5133-87	26	73680800	Nut, Crownlock 1/2-13 Unc
5	19292016	Washer 29/32 x 1-1/4 x 16 Ga.	29	150233	Trunnion Inf. Height
6	71110624	Bolt, Fin Hex 3/8-16 x 1-1/2	30	110807X	Nut, Special
7	125631X	Grip, Handle Fluted	31	19131016	Washer 13/32 x 5/8 x 16 Ga.
8	170770	Button, Plunger	32	137150	Spring, Compression Inf Hgt
9	122364X	Plunger, Lever Lift	33	76020308	Pin, Cotter 3/32 x 1/2
10	2876H	Spring 2-1/8"	34	137167	Rod, Adj Lift
11	146704	Link Lift	35	138057	Knob, Inf 3/8-16 Unc
12	163552	Retainer, Spring	38	155097	Pointer, Height Indicator
13	139868	Arm, Suspension Vgt	39	123935X	Plug, Hole
14	169865	Bearing Pivot Lift Tapered	40	17060516	Screw 5/16-18 x 3/4
15	73350600	Nut, Crownlock 3/8-16 Unc	41	73540600	Nut, Crownlock 3/8-24
16	674A247	Spring Asm., Assist Lift	42	19112410	Washer 11/32 x 1-1/2 x 10 Ga.
17	73680600	Nut, Hex Jam 3/8-16 Unc	43	123934X	Scale, Indicator Height
18	143363	Bracket, Spring Assist	70	145212	Nut, Hexflange Lock
19	19131316	Washer 13/32 x 13/16 x 16 Ga.	72	110452X	Nut, Push Phos & Oil
20	5328J	Bolt, Adjust Spring Assist	73	73350600	Nut Hex Jam 3/8-16 Unc
21	74760616	Bolt, Fin Hex 3/8-16 x 1			
22	127218	Link, Front			

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

REPAIR PARTS

TRACTOR - - MODEL NUMBER PRGT22H50A

MOWER DECK



REPAIR PARTS**TRACTOR - - MODEL NUMBER PRGT22H50A****MOWER DECK**

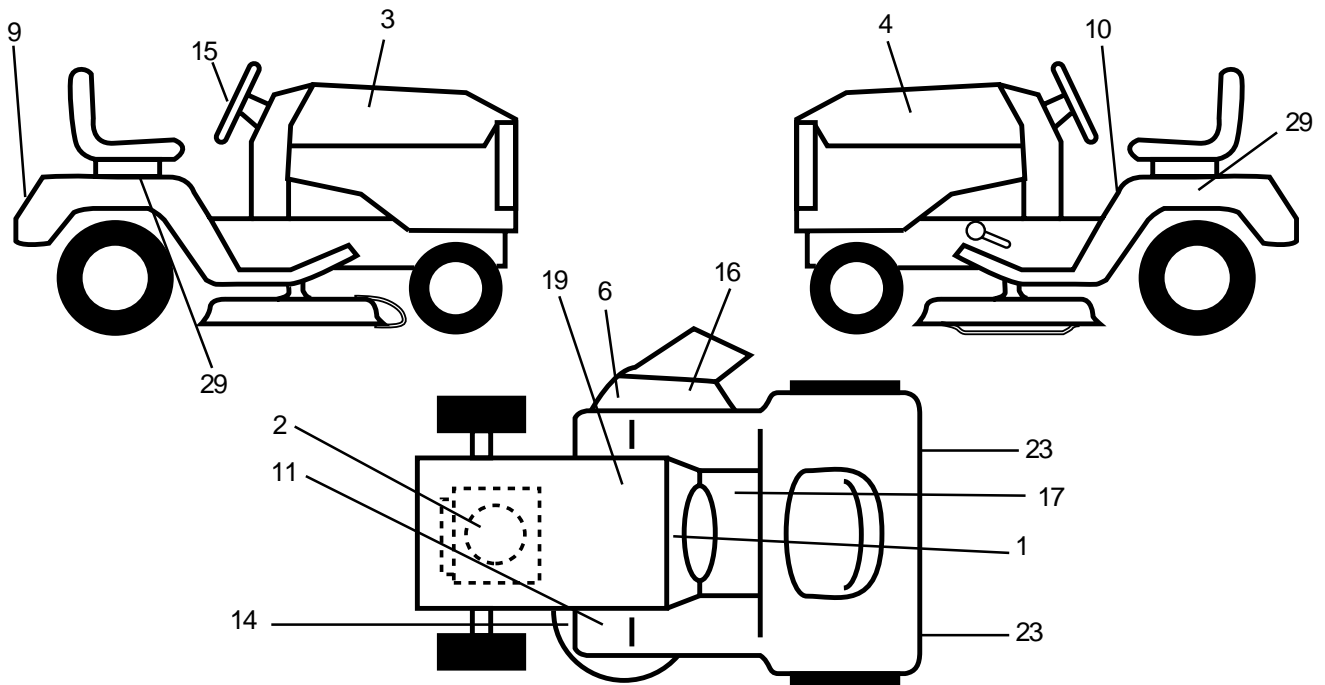
KEY NO.	PART NO.	DESCRIPTION	KEY NO.	PART NO.	DESCRIPTION
1	157787	Deck Asm., Mower 50"	49	136574	Cover, Mandrel LH
2	73680500	Nut, Crownlock 5/16-18	50	137272	Arm, Idler Primary
5	138457	Bracket Asm., Sway Bar	51	137273	Spring, Secondary
6	4939M	Retainer, Spring	52	139245	Pulley, Idler V Groove
7	130832	Arm Suspension, Rear	53	137789	Shield, Idler
8	850857	Bolt 3/8-24 x 1.25 Gr. 8 Patched	54	139573	V-Belt, Mower Primary
9	10030600	Washer, Lock Hvy 3/8 Unplated	55	144959	V-Belt, Mower Secondary
10	140296	Washer, Hard Blade Mower Vented	56	138687	Spring, Primary
11	137380	Blade (3 Required)	58	133957	Wheel, Gauge
13	137553	Shaft Asm., W/Lower Brg	59	137644	Bolt, Shoulder
14	137152	Housing, Mandrel 50" Vent	62	133943	Washer Hardened
15	110485X	Bearing, Ball Mandrel	63	72110612	Bolt Carriage 3/8-16 x 1-1/2
16	174493	Stripper, Mower Vented	64	19121414	Washer 3/8 x 7/8 x 14 Ga.
17	106735X	Rod, Hinge	65	173981	Pulley Idler Flat Mower
18	19111016	Washer 11/32 x 5/8 x 16 Ga.	66	173979	Keeper, Belt Idler 50" Vent
19	105304X	Cap Sleeve	67	73930600	Nut, Center Lock 3/8-16
20	123713X	Spring, Torison Delector	94	74760616	Bolt H 3/8-16 x 1
21	137607	Bracket, Deflector	95	132274	Bracket, Asm. Noseroller LH
22	110452X	Nut, Push	96	132273	Bracket, Asm. Noseroller RH
23	110509X428	Shield, Deflector Mower	97	19171416	Washer 17/32 x 7/8 x 16 Ga.
26	72110606	Bolt RdHd Sht Sqnk	98	132264	Roller, Nose
27	19131316	Washer 13/32 x 13/16 x 16 Ga.	99	72110614	Bolt, Carriage 3/8-16 x 1-3/4 Gr. 5
28	132823	Spacer, Spring Stop Idler	103	155986	Bar Adj. Gauge Wh.
29	73800600	Nut, Lock Hex W/Wsh 3/8-16 Unc	104	156941	Pin Head Rivot
30	157722	Screw Thd Rolling Washer Head	105	156852	Bracket Ga Wh Asm RH 50
31	137266	Nut, Flg Top Lock Cntr 9/16	106	156853	Bracket Ga Wh Asm LH 50
32	173436	Pulley, Mandrel	107	156854	Bracket Ga Wh Assy F RH 50
33	129963	Washer, Spacer Mower Vented	108	156856	Bracket Ga Wh Assy F LH 50
34	72140610	Bolt, Carriage 3/8-16 x 1-1/4	109	72010505	Bolt Carriage 5/16- 18 x 5/8
35	72110616	Bolt, Carriage 3/8-16 x 2	110	73980500	Nut Crownlock 5/16-18
36	72110608	Bolt, Carriage 3/8-16 x 1 Gr. 5	112	19171216	Washer 17/32 x 3/4 x 16 Ga.
37	137166	Stiffener, Arm Idler	113	72110504	Bolt Carriage 5/16-Unc 1/2
38	173968	Keeper, Belt Idler	--	143651	Mandrel Asm (Includes Key Nos. 8-10, 13-15, 31 and 33)
39	173438	Pulley, Idler Flat	--	173532	Mower Asm Service (Std. Deck - Order separately all Nose Roller components)
40	173980	Pulley, Driven			
42	72140506	Bolt, Carriage 5/16-18 Unc x 3/4			
43	136460	Arm, Idler Secondary			
44	122052X	Spacer, Retainer			
45	73680600	Nut, Crownlock 3/8-16 Unc			
46	74760628	Bolt, Fin Hex 3/8-16 Unc x 1-3/4			
47	137200	Cover, Mandrel RH			
48	137729	Screw, Thd Roll 1/4-20 x 5/8			

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

REPAIR PARTS

TRACTOR - - MODEL NUMBER PRGT22H50A

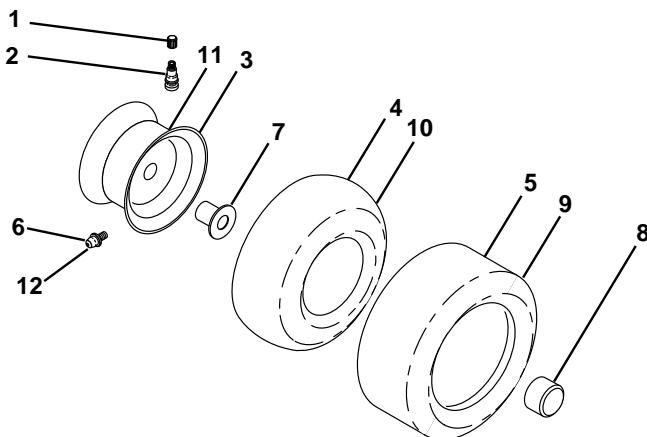
DECALS



KEY NO.	PART NO.	DESCRIPTION
1	164095	Decal, Dash
2	170852	Decal, Engine
3	176272	Decal, Hood, RH
4	176273	Decal, Hood, LH
6	170563	Decal, Warning
9	172740	Decal
10	157140	Decal, Danger
11	101892X	Decal, Clutch/Brake
14	160397	Decal, V-Belt Schematic
15	172743	Decal, Ins. Whl. Strg.

KEY NO.	PART NO.	DESCRIPTION
17	140837	Decal, Saddle Brake Parking
19	145005	Decal, Battery
23	106202X	Reflector, Taillight
29	176651	Decal, Fender Auto Trans
--	138311	Decal, Handle Lift (Lift Handle)
--	133671	Pad Footrest
--	142342	Decal, Control Movement
--	176873	Manual, Owner's (English)
--	176874	Manual, Owner's (French)

WHEELS & TIRES



KEY NO.	PART NO.	DESCRIPTION
1	59192	Cap, Valve, Tire
2	65139	Stem, Valve
3	106228X421	Rim Assembly, Front
4	8134H	Tube, Front (Service Item Only)
5	106230X	Tire, Front
6	278H	Fitting, Grease (Front Wheel Only)
7	9040H	Bearing, Flange (Front Wheel Only)
8	104757X421	Cap, Axle (Front Wheel Only)
9	105588X	Tire, Rear
10	7154J	Tube, Rear (Service Item Only)
11	106277X421	Rim Assembly, Rear
12	6856M	Fitting, Grease
--	144334	Sealant, Tire (10 oz. Tube)

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