snorkel

TL39



SERVICE & MAINTENANCE MANUAL

Part Number 1480127-000
August 2025

MidWestTech | Snorkel TL39 Towable Boom Lift Service and Maintenance Manual | Public...

Order the manual at mid-west-tech.com >

TABLE OF CONTENTS

Section 1 General Information

Component Identification 8
Serial Number Locations 9
Working Envelope 10
Safety Precautions 11
Operator's Manual Procedures 12
Technical Bulletins 12
Abbreviations List 13

Section 2 Specifications

General Specifications 16
Surge Brake Coupler 17
Engine Specifications 17
Engine Operated Gear Pump 18
6 Volt Battery 18
12 Volt Battery 18
Battery Charger Specifications 19
Fastener Torque Chart 20
- Standard System 20
- Metric System 21

Section 3 Hydraulic Components

Hydraulic Component Location 24
- Right Side 24
- Center 25
- Left Side 26

Coupler with Surge Brake 27
- Top View 27
- Bottom View 28

Hydraulic Pump and Coupler 29
Swing Drive 30
Outriggers 31
- Cylinder 31
- Manifold 32

24 Volt DC Electric Power Unit 34
Hydraulic Fluid Reservoir 35
Function Manifold 36
Riser Boom Lift Cylinder 38
Main Boom Lift Cylinder 39
Main Boom Extend Cylinder 40
Master and Slave Level Cylinder 41
Platform Rotate Cylinder 42

MidWestTech | Snorkel TL39 Towable Boom Lift Service and Maintenance Manual | Public... Order the manual at mid-west-tech.com >

Section 4 Electrical Components

Electrical Components 44
Right Side 44
Left Side 45
Center 46
Outrigger Limit Switch 47
Outrigger Control Panel 48
External Components 48
Internal Components 49
Matrix Board Pinouts 50
Wiring 52
Lower Control Box 53
External Components 53
Internal Components 54
Terminal Board Module 55
Wiring 56
Control Board and Pinouts 57
Battery Charger 60
24 Volt Battery Bank 61
DC Converter 63
Boom Electrical Components 64
Main Boom Lift Limit Switch 65
Riser Boom Limit switch 66
Upper Control Box 67
External Components 67
Internal Components 68
Matrix Board and Pinouts 69
Wiring 71
Honda Gas Engine 71
24 Volt 72
24 Volt Bi-Energy 73
Harnesses 74
Outrigger Control Box to Outrigger Manifold 74
Outrigger Leg Switch - J3-A Harness 75
Lower Control Box to Function Manifold 76
Harness 76
Plug Components 77
Pinouts 78
Lower Control Box to Upper Control Box 79
Lower Control Box to Trailer 80
Lower Control Box to Honda Gas Engine 81
Lower Control Box to Main Boom Limit Switch Harness 82
Honda Gasoline Engine Harness 83
Lower Control Box to Riser Boom Limit Switch 84
J5 Boom Bleed Down / Engine / Boom Limit Switch Harness 85

Section 5 Engine Components

Honda Engine 88

MidWestTech | Snorkel TL39 Towable Boom Lift Service and Maintenance Manual | Public... Order the manual at mid-west-tech.com >

Section 6 Trailer Components
Jockey Wheel 94
Axle 95
Rotation Bearing 96

Section 7 Outriggers
Outrigger Location 100
Outrigger Components 101

Section 8 Booms
Boom Components 104
Boom Assembly Components 105

Section 9 Platform
Platform Components 108

Section 10 Options
240 Volt AC Pump And Motor 110

Section 11 Procedures & Adjustments
Recommended Tools 112
Surge Brake Procedures 113
- Filling and Bleeding Surge Brake 113
- Surge Brake Maintenance 114
- Testing Surge Brake Systems 115

Switch Adjustments 116
- Outrigger Limit Switch 116
- Riser Boom Limit Switch 117
- Main Boom Limit Switch 118

Pressure Adjustments 119
- Function Manifold 119

Section 12 Maintenance
General Maintenance 122
Lubrication Points 124
Battery Care and Maintenance 127
Maintenance Schedule 129
- Prestart Inspection Checklist 129
- Daily Check 130
- Weekly Check 132
- Monthly Check 132
- 6-Month Check 132

Major Repairs 133
Filter Service Intervals 134

MidWestTech | Snorkel TL39 Towable Boom Lift Service and Maintenance Manual | Public... Order the manual at mid-west-tech.com >

FASTENER TORQUE CHART

Metric System

Capscrew	Grade 8.8					Grade 10.9				
Size	In-LBS Dry	In-LBS Lubed	FT-LBS Dry	FT-LBS Lubed	Clamp Load (lb)	In-LBS Dry	In-LBS Lubed	FT-LBS Dry	FT-LBS Lubed	Clamp Load (lb)
M4 - 0.7	27	20			861	36	24			1,173
M5 - 0.8	55	41			1,394	72	60			1,895
M6 - 1.0	93	70			1,971	132	96			2,686
M8 - 1.25	228	168	19	14	3,591	312	228			4,889
M8 - 1.0	240	180	20	15	3,844	336	252			5,232
M10 - 1.5			37	28	5,693			51	38	7,744
M10 - 1.25			39	30	6,008			54	41	8,171
M12 - 1.75			65	49	8,273			89	66	11,257
M12 - 1.25			71	53	9,037			96	72	12,297
M14 - 2.0			103	77	11,285			140	107	15,354
M14 - 1.5			114	85	12,263			155	114	16,691
M16 - 2.0			162	122	15,404			221	166	20,963
M16 - 1.5			173	129	16,388			236	177	22,311
M18 - 2.5			222	167	19,423			235	176	
M18 - 1.5										
M20 - 2.5			317	236	24,042			428	321	32,720
M20 - 1.5			350	262	26,695			479	358	36,316
M22 - 2.5			428	321	30,651			452	339	
M22 - 1.5										
M24 - 3.0			546	409	34,642			745	557	47,141
M24 - 2.0			594	446	37,676			811	605	51,277
M27 - 3.0			796	597	45,039			1,084	811	61,292
M27 - 2.0			863	645	58,785			1,173	848	66,226
M30 - 3.5			1084	811	55,054			1,475	1106	74,915
M30 - 3.0			1121	841	56,908			1,527	1143	77,444
M30 - 2.0			1202	900	60,932			1,630	1224	82,917

Rev D

Torque chart information:

- Consult manufacturers' specific recommendations, when available.
- The chart may be used with both coarse and fine thread fasteners lightly lubricated.
- Increase torque by 20% when multiple tapered tooth (shake proof) lock washers are used.
- Foot/pound equivalent may be obtained by dividing by 12.
- Inch/pound equivalent may be obtained by multiplying by 12.
- Newton/meter equivalent may be obtained by multiplying inch/pound by 0.1130.
- Newton/meter equivalent may be obtained by multiplying foot/pound by 1.3558.

MidWestTech | Snorkel TL39 Towable Boom Lift Service and Maintenance Manual | Public... Order the manual at mid-west-tech.com >

HARNESSES

Honda Gasoline Engine Harness



CAV	CCT
1	1
2	2
3	3

Circuit	Description	Color
1	Ignition	Brown
2	Start	Green
3	Choke	Blue

MidWestTech | Snorkel TL39 Towable Boom Lift Service and Maintenance Manual | Public... Order the manual at mid-west-tech.com >

BATTERY CARE AND MAINTENANCE

Battery Care and Maintenance
The following information about battery care and maintenance was supplied by Interstate Batteries and is reprinted here with their permission.

1. New batteries need to be cycled several times before reaching full capacity (20-50 cycles, depending on type). Usage should be limited during this period.

2. Always recharge batteries fully, immediately after use. Batteries perform best when they are fully charged. More capacity and longer life will result from this practice.

3. The deeper the discharge, the fewer number of cycles a lead-acid battery will deliver. Deep discharges deteriorate the battery quicker than lighter shallow cycles.

4. Battery cables should be intact and connectors kept tight at all times. Systematic inspection is recommended.

5. Vent caps should be kept in place and tight during vehicle operation and battery charging.

6. Batteries should be kept clean – free of dirt and corrosion – at all times. Always keep the top of batteries clean. A film on top of the battery can cause the current to migrate between the posts, accelerating self discharge.

7. Never let the electrolyte level of a lead-acid battery fall below the plates. Lack of maintaining the electrolyte in a lead-acid battery causes damage to the exposed portion of the plate which reduces capacity.

8. Always check electrolyte level before charging. Do not add water to individual cells unless plates are exposed. Batteries should be watered after charging unless the plates are exposed before charging. If exposed before charging, the plates should be covered by approximately 1/8" of water. Check water level after charging. Water should be kept 1/4" below the bottom of the fill tube in the cell cover.

9. Water used to replenish batteries should be distilled or treated to not exceed 200 T.D.S. (total dissolved solids... parts per million). Particular care should be taken to avoid metallic solids (iron).

10. A fully charged battery will give you the best and longest service. Be sure the batteries are fully charged before testing or using. A fully charged battery, without a drain or load, after the surface charge has dissipated, is 6.35 volts for a 6 volt battery.

11. Batteries should not be discharged below 20% of capacity (approximately 1.8 volts per cell under normal operating load; 1.98 volts open circuit; 1.145 specific gravity). Proper battery sizing will help avoid excessive discharge.

12. Battery chargers should be sized to fully charge batteries in an eight hour period. Chargers should be kept in proper operating condition.

13. Do not use a mismatched charger of any type; i.e., a 12 volt charger on a 24 volt pack or a 24 volt charger on a 12 volt pack. An undersized charger will never get the job done, no matter how long it tries. An oversized charger will cause excess gassing and heat that could possibly result in a battery meltdown and/or explosion.

14. Never charge a lead-acid battery with a sealed (gel cell) battery charger. The lead-acid battery needs higher voltage to finish its charge. Without it the battery will never come back to 100% and sulfation can occur.

15. Always allow batteries to cool off after charging. The cooling time is very important because heat is generated during the recharge and discharge cycles. Without the cooling time the heat grows, accelerating grid corrosion which is one of the major causes of battery failure. Charging practice should enable batteries to cool before use.

16. Deep cycle batteries need to be equalized periodically. Equalizing is an extended, low current charge performed after the normal charge cycle. It helps keep cells in balance. Actively used batteries should be equalized once per week. Manually timed chargers should have the charge time extended approximately 3 hours. Automatically controlled chargers should be unplugged and reconnected after completing a charge cycle.

17. In situations where multiple batteries are connected in series, parallel or series-parallel, a replacement battery should be of the same size, age and usage level as the companion batteries. Do not put a new battery in a pack that has 50 or more cycles. Either replace all the batteries with new batteries or install a good used battery in place of the bad. New batteries should be given a full charge before use.

18. Periodic battery testing is an important preventative maintenance procedure. Hydrometer readings of each cell (fully charged) give an indication of balance and true charge level. Imbalance could mean the

MidWestTech | Snorkel TL39 Towable Boom Lift Service and Maintenance Manual | Public... Order the manual at mid-west-tech.com >