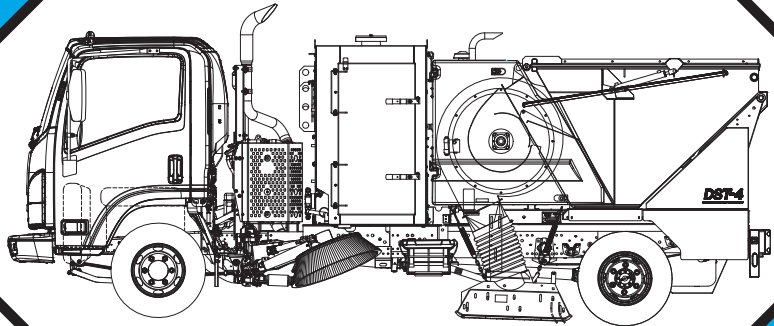


MODEL DST-4

DUSTLESS
SWEEPING
TECHNOLOGY



TYMCO, INC.
P.O. BOX 2368, WACO, TEXAS 76703
(Shipping Address)
225 EAST INDUSTRIAL BLVD. WACO, TEXAS 76705
PHONE: 254-799-5546 • FAX: 254-799-2722
WEB SITE: www.tymco.com
E-MAIL ADDRESS: info@tymco.com

PARTS
&
SERVICE
MANUAL

2021

California Proposition 65

WARNING:

Operating, servicing and maintaining a passenger vehicle or off-highway motor vehicle can expose you to chemicals including engine exhaust, carbon monoxide, phthalates, and lead, which are known to the State of California to cause cancer and birth defects or other reproductive harm. To minimize exposure, avoid breathing exhaust, do not idle the engine except as necessary, service your vehicle in a well-ventilated area and wear gloves or wash your hands frequently when servicing your vehicle. For more information go to www.P65Warnings.ca.gov/passenger-vehicle.



INTRODUCTION

The Model DST-4 Parts and Service Manual is a very important part of the sweeper unit. The manual is broken down into sections as listed under the General Contents. Each section is named after the most important part or assembly in that section. In order to simplify the contents, a separate table of contents is placed at the beginning of each section. This table breaks the part or assembly down and enables the operator, maintenance director or parts man to pinpoint even a single part, troubleshooting method or maintenance operation when needed. It also consists of a general explanation describing that section's function on the sweeper unit.

**TYMCO REGENERATIVE AIR SWEEPER
MODEL DST-4**

SOLD & SERVICED BY:

NOTE: DO NOT destroy any part of this manual. It contains pertinent information on parts, operation and maintenance of your TYMCO REGENERATIVE AIR SWEEPER and truck chassis.

An informed mechanic will do a better job. Make sure he/she has an opportunity to study this manual.

*This Parts and Service Manual is the property of TYMCO, and is considered proprietary. It may not be reproduced by photo copying or otherwise without the express written permission of TYMCO.
Violators will be prosecuted to the full extent of the law.*

GENERAL

TABLE OF CONTENTS

DESCRIPTION	SECTION
Introduction	
Truck	A
DST-4 Side Door/Engine Door	B
Frame	C
Hopper	D
Separator	E
Blower.	F
Power Unit	G
Pick-Up Head	H
Gutter Broom	I
Hydraulic System	J
Water System	K
Fuel System.	L
Control System	M
Auxiliary Hand Hose	N
Lubrication	O
Isuzu Dual Steering	P
Magnet	Q
DST Components.	R
Tool Kit . . . . .	.TK
Model DST-4 Options . . . . .	.OPT

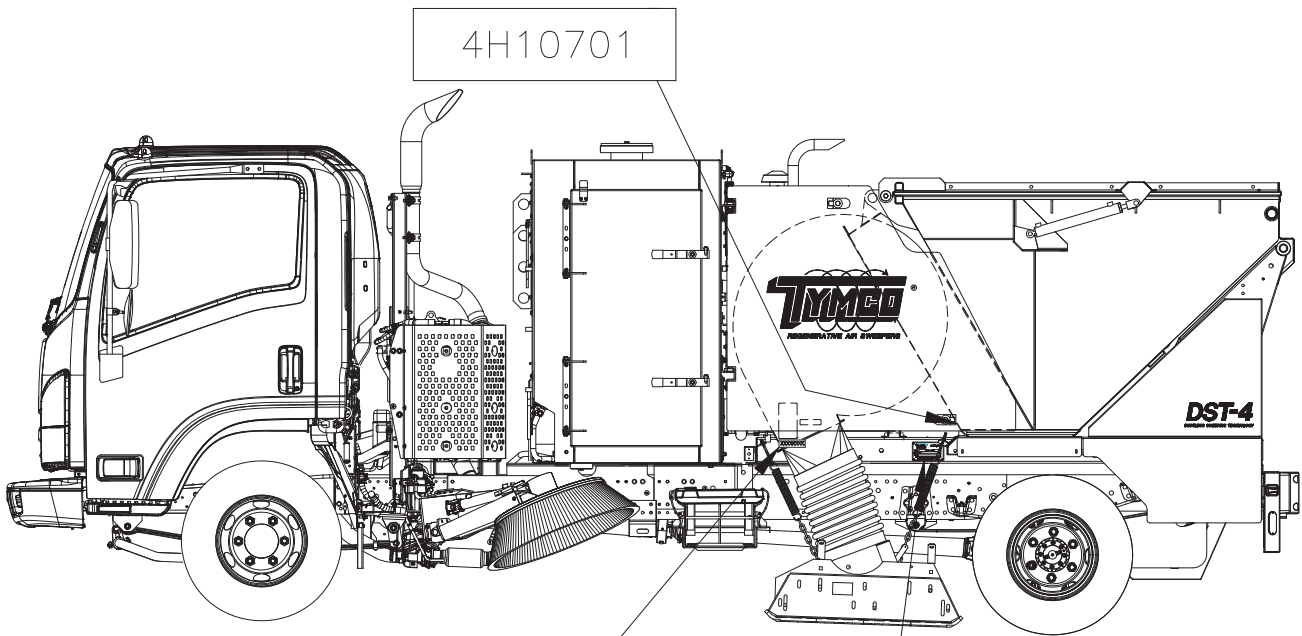
IMPORTANT

When ordering parts give:

Examples

1. Sweeper Serial Number
2. Part Number
3. Part Description
4. Quantity
5. Assembly Number

2021 10 SND 40100DST
5010206
Blower Wheel
One or (1)
500006



4H10701

FRAME NUMBER PLATE

4F10701

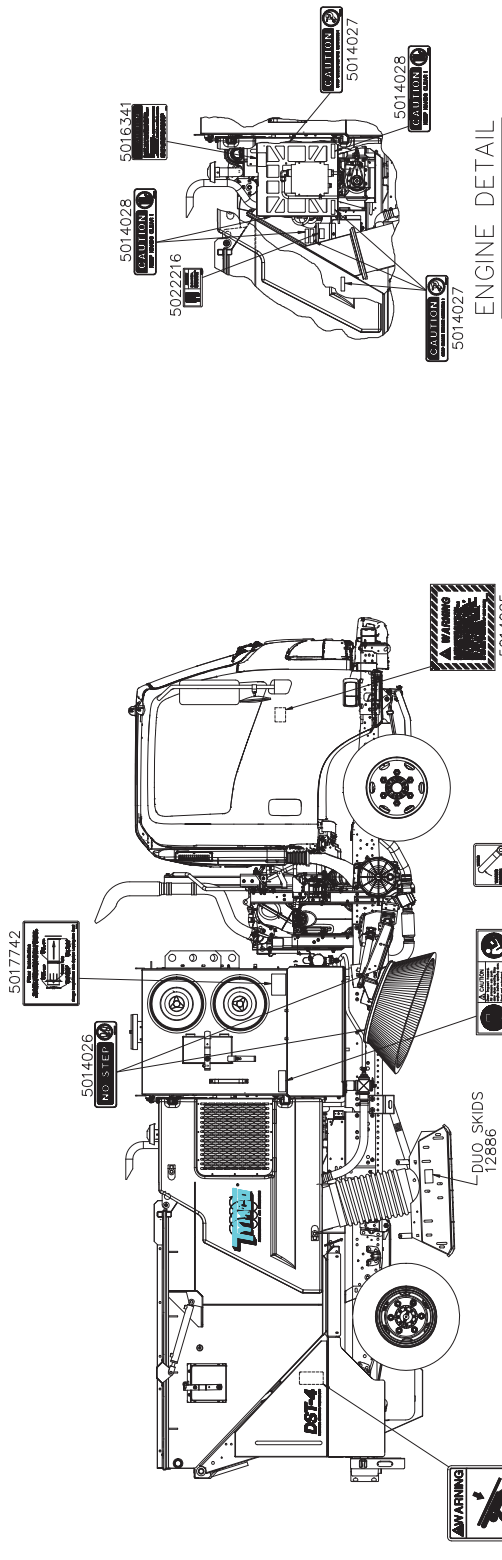


MODEL DST-4
IDENTIFICATION PLATE
LOCATIONS
(M01873) REV D

07-07-2020
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		WACO, TEXAS	
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CODE	<input type="text"/>		
<small>COVERED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 6,919,496; 6,920,846; 6,922,000; 6,922,001; 6,922,002; 7,194,892; 7,194,893; 7,194,894; 7,194,895; 7,194,896; 7,194,897; 7,194,898; 7,194,899; 7,194,900; 7,194,901; 7,194,902; 7,194,903; 7,194,904; 7,194,905; 7,194,906; 7,194,907; 7,194,908; 7,194,909; 7,194,910; 7,194,911; 7,194,912; 7,194,913; 7,194,914; 7,194,915; 7,194,916; 7,194,917; 7,194,918; 7,194,919; 7,194,920; 7,194,921; 7,194,922; 7,194,923; 7,194,924; 7,194,925; 7,194,926; 7,194,927; 7,194,928; 7,194,929; 7,194,930; 7,194,931; 7,194,932; 7,194,933; 7,194,934; 7,194,935; 7,194,936; 7,194,937; 7,194,938; 7,194,939; 7,194,940; 7,194,941; 7,194,942; 7,194,943; 7,194,944; 7,194,945; 7,194,946; 7,194,947; 7,194,948; 7,194,949; 7,194,950; 7,194,951; 7,194,952; 7,194,953; 7,194,954; 7,194,955; 7,194,956; 7,194,957; 7,194,958; 7,194,959; 7,194,960; 7,194,961; 7,194,962; 7,194,963; 7,194,964; 7,194,965; 7,194,966; 7,194,967; 7,194,968; 7,194,969; 7,194,970; 7,194,971; 7,194,972; 7,194,973; 7,194,974; 7,194,975; 7,194,976; 7,194,977; 7,194,978; 7,194,979; 7,194,980; 7,194,981; 7,194,982; 7,194,983; 7,194,984; 7,194,985; 7,194,986; 7,194,987; 7,194,988; 7,194,989; 7,194,990; 7,194,991; 7,194,992; 7,194,993; 7,194,994; 7,194,995; 7,194,996; 7,194,997; 7,194,998; 7,194,999; 7,195,000</small>			

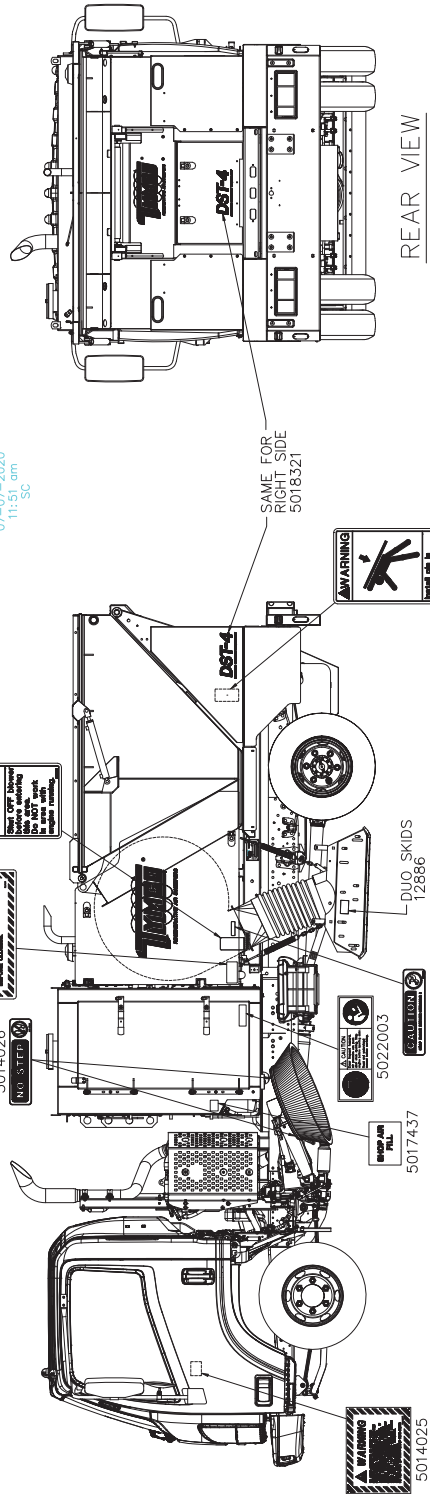
TYMCO SERIAL NUMBER PLATE



RIGHT SIDE VIEW



MODEL DST-4
DECAL LOCATION LAYOUT
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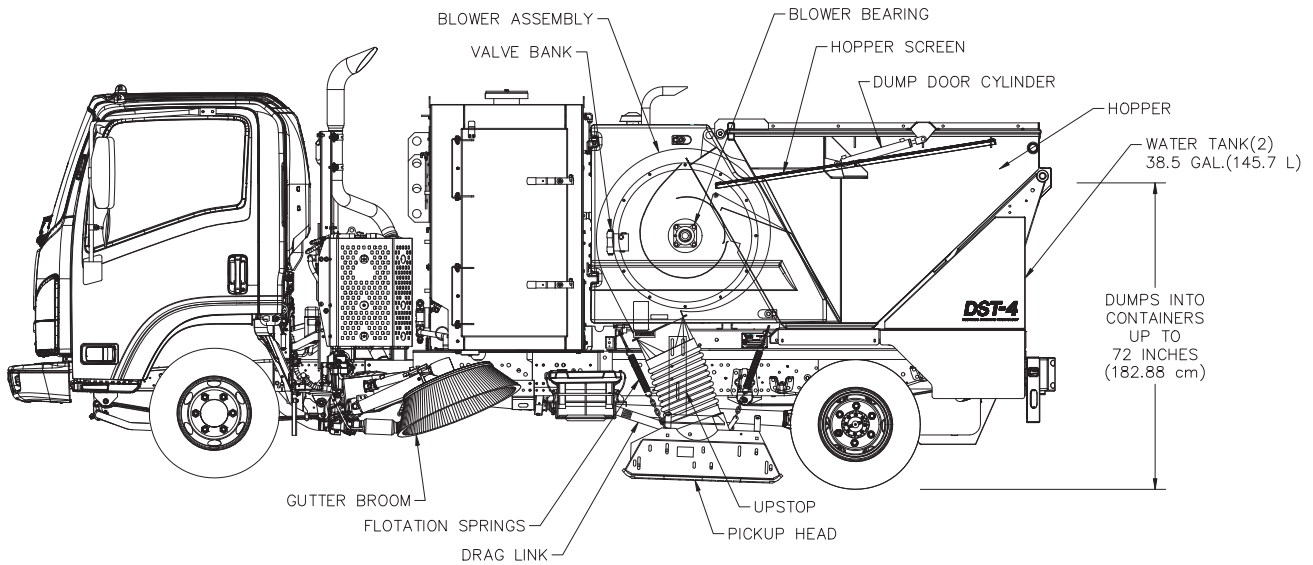
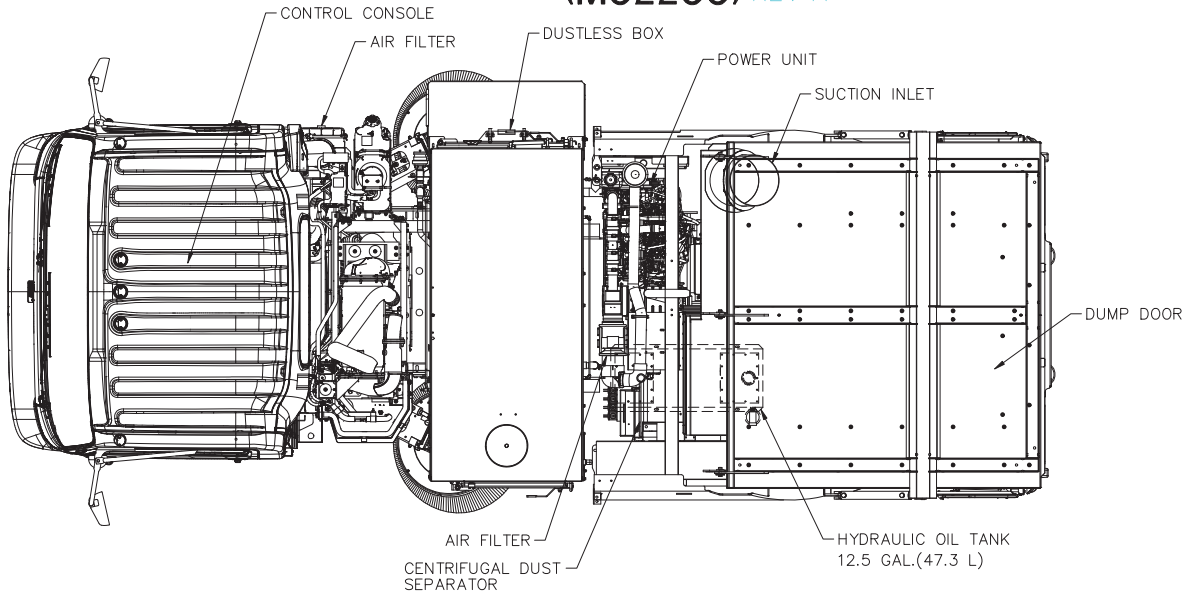


LEFT SIDE VIEW

REAR VIEW

NOTE:
A. INSIDE OF FRAME.

MODEL DST-4 COMPONENTS (M02200) REV A





Operating Procedures Guidelines Model DST-6 & DST-4

Complete Sweeper Inspection

- Check Auxiliary Engine Oil and Coolant
- Check for Seal Leaks
- Check Warning And Work Lights
- Inspect Pick-up Head
- Check Gutter Broom
- Adjust Mirrors
- Fill Fuel Tank
- Fill DEF Tank(s) (if equipped)
- Fill Water System
- Check Dustless Box, Pre-cleaner, and Scavenge Hose

Sweeper Start-up

1. Lower Pick-Up Head using Auxiliary Hydraulics
2. Start Rear Engine (Must be in idle)
3. Turn on Warning Lights
4. Turn on DC System and Air Purge System
5. Pull Sweeper Forward to Tuck Pick up Head Curtains.
6. Turn on Water System
7. Throttle up Auxiliary Engine RPM to desired levels. Wait 45 seconds before starting sweeping.
8. Lower Gutter Broom (s)
9. Begin Sweeping
10. **DO NOT BACK UP WITH PICK-UP HEAD DOWN.** Throttle down, pick up head then back up. (Reverse Pick-Up Head Chains – allow you to back up with the head down.)

Sweeper Shut Down

1. Lower Auxiliary Engine RPM to idle speed (1100 RPM for Model DST-4 and 1000 for Model DST-6) and turn off Purge System
2. Raise Gutter Brooms (Must hold switch in the up position to fully retract gutter broom)
3. Turn off Auxiliary Engine
4. Turn on Auxiliary Engine Switch, **DO NOT** start.
5. Using Auxiliary Hydraulic System, raise Pick-Up Head.
6. Turn off Water System if on
7. Turn off Warning Lights
8. Turn off Auxiliary Engine Switch

Clean Out Procedures (DAILY)

- Clean Hopper Screens
- Clean out Hopper
- Clean out Dust Separator
- Clean under Pick-up Head
- Clean around gutter brooms
- Clean Exterior of Sweeper and Chassis
- Clean off Radiators

Dustless Operations (Shutdown)

- Idle down auxiliary engine.
- Turn on purge system and listen for air guns to discharge approximately every 17 seconds.
- Allow purge system to operate for approximately 5 minutes.
- Check pressure relief port for proper function.
- Drain any accumulated moisture from the water/air filter located at the top of the filter assembly box.

- Open pre-cleaner door and **CAREFULLY** remove pre-cleaner assembly. Shake off any dust and if necessary, use “shop air” to blow out any accumulation of dust from pre-filter openings and wash thoroughly. Must be completely dry before next sweeping day.

NOTE: Clean scavenge bin and scavenge hose daily with water.

- With filter side door open, look at the 4 Torit-Tex® filters, if excessive amount of dust is present, reassemble all hoses and insure that all doors are closed and latched and attach shop air to the air hose fitting located on left bottom of dust box below air manifold tank. Filters purge system can be run without auxiliary engine running. Auxiliary engine can also be used to operate purge system after system has been fully charged (100 psi) if desired.
- Always insure that on/off switch is in the OFF position and purge all air from the air tank before beginning any service work in dustless box assembly.
- Check all water spray nozzles daily to insure they are spraying properly. (**Never operate gutter brooms without dust control system engaged and all water toggle switches in “on” position.**)

Parking Procedures

- Leave Hopper Door and Inspection Door(s) Open

TYMCO REGENERATIVE AIR SWEEPER INSPECTION AND REPETITIVE TASK SCHEDULE

Inspect	
Gutter broom(s) for impact damage/wear	Daily
Pick-up head blast orifice for lodged foreign material/adjustment	Daily
Pick-up head skid plates for wear/impact damage	Daily
Pick-up head curtains for wear/damage	Daily
Hydraulic system for plumbing or component leakage	Daily
All hopper and transition seals for wear/damage	Daily
Hopper screen for damage	Daily
Tires	Daily
Hydraulic oil return line filter restriction	Daily
Water pump oil level	Daily (If applicable)
Water filler hose filter screen	Daily (If applicable)
Water pump suction hose pre-filter	Daily (If applicable)
Dust separator liner for wear/damage	Daily (If applicable)
Dust separator door closed before operating	Daily (If applicable)
Engine air intake filter restriction indicators	Daily (If applicable)
Pick-up head turning vanes for wear/foreign material	Weekly
Blower belt tension	100 Hours (Minimum) (If applicable)
Pressure and suction hoses for wear	100 Hours
Blower wheel for wear/damage	100 Hours
Accessible areas of blower housing liner for wear/damage	100 Hours
Blower lip for wear/damage	100 Hours

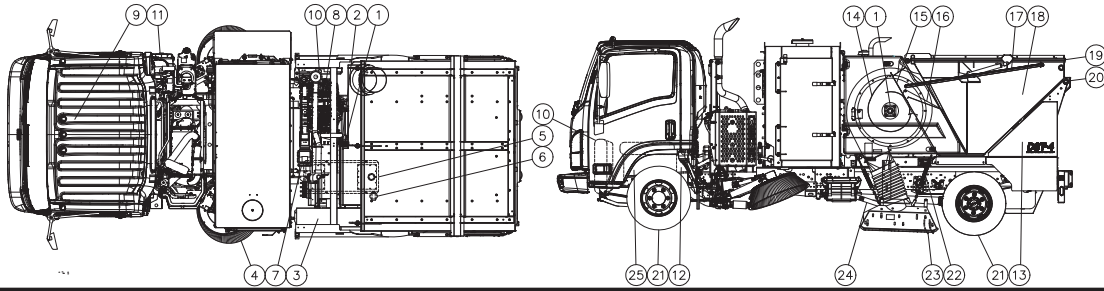
Perform	
Cleaning of gutter broom torque motor shaft area	Daily
Check of hydraulic tank fluid level	Daily
Draining water tank	Daily
Cleaning of hopper and dust separator	Daily
Wash down of engine radiator(s)	Daily
Functional test sweeper lights	Daily
Functional test truck brakes	Daily
Functional test truck lights	Daily
Check of truck fluid level	Daily
Check of auxiliary engine fluid level	Daily (If applicable)
Rotation pressure and suction hoses 1/4 turn	100 Hours
Change of water pump oil	150 Hours (If applicable)
Change of hydraulic oil return line filter	1000 Hours or when Indicated
Change of hydraulic system oil	2000 Hours or by oil analysis
Adjustment of gutter brooms	As required
Cleaning of spray nozzle tips and screens	As required



MODEL DST-4

QUICK REFERENCE SERVICE CHART

(M01864) REV C



ITEM	DESCRIPTION	RECOMMENDED SERVICE
1.	Blower Bearings	Grease approximately every 25 hours of operation.
2.	Blower Power Band	Re-tension after initial 10 hours; then check every 100 hours.
3.	Blower Wheel	Inspect monthly for wear. DO NOT REACH INTO BLOWER HOUSING FOR ANY REASON!
4.	Gutter Broom / Wafer	Check DAILY for string, cassette tape, etc on motor shaft. Re-tension spring when new wafers are installed.
5.	Hydraulic Reservoir	Change oil every 2000 hours or by oil analysis recommendation. Check oil level DAILY.
6.	Hydraulic Oil Filter	Change every 1000 hours or as indicated by restriction indicator.
7.	Aux. Engine Air Cleaner	Replace when restriction indicator shows red.
8.	Auxiliary Engine	Change oil after initial 50 hours, then every 250 hours. Check oil level DAILY. For additional service refer to engine manual.
9.	Console Fuse Panel	Always replace fuse with identical amp rating.
10.	Both Engine Radiators	Check DAILY. CAUTION - Check only when cold.
11.	Truck Air Cleaner	Service every 25 hours or when restriction gauge indicates.
12.	Transmission	Change oil & filter every 15,000 miles or once a year.
13.	Water Tank	Drain tank DAILY.
14.	Centrifugal Separator	Wash out DAILY! Cleanout door provided on engine side.
15.	Separator Seal	Clean seal DAILY. Hopper must be airtight and fit snugly against seal when lowered.
16.	Skimmer Hood	Inspect DAILY! Skimmer hood must swing freely when hopper is raised in order to clean itself of debris.
17.	Hopper Screen	Wash DAILY to prevent air blockage.
18.	Hopper	Wash out at end of each shift to prevent rusting.
19.	Dump Door Seal	Inspect DAILY; replace if damaged.
20.	Hopper Pivot Hinge	Grease every 25 hours of operation or once a week. CAUTION: Hopper must be raised in order to grease hinge. Always Install Pin in Lower Safety Strut!
21.	Truck Tires	Check DAILY for flats and correct air pressure.
22.	Spring Tension	Check skid plates weekly for wear; adjust spring tension as required.
23.	Pick-Up Head Curtains	Inspect DAILY; replace when worn out .
24.	Drag Link	Inspect DAILY for condition
25.	Truck Engine	Change oil and filter every 100 hours or 3000 miles of operation.

NEVER REACH INTO BLOWER HOUSING FOR ANY REASON!



REGENERATIVE AIR SWEEPER® WARRANTY

TYMCO REGENERATIVE AIR SWEEPERS (“TYMCO Product”) are warranted to be free from defective materials and workmanship for a period of 12 months or 1,000 hours from date of delivery and such period being hereinafter referred to as “warranty period.” It is the sole responsibility of the dealer in whose territory the TYMCO Products are used, with respect to the warranty period to replace, free of charge, F.O.B. Waco, Texas, any original TYMCO part or parts which may prove to be defective due to defective workmanship or materials within the warranty period. This warranty does not apply to instances where there has been use of unauthorized parts or changes to the TYMCO Product, whether done voluntarily or by incompetence, carelessness, negligence, accident or need of attention upon the part of the purchaser, agents, employees or other parties.

This warranty shall not cover normal maintenance and adjustments, and shall not include, nor shall Seller or TYMCO be liable or responsible for, material for normal wear and usage.

TYMCO reserves the right to change the design and construction of the TYMCO Product when, in its sole discretion, any such change represents an improvement to the TYMCO Product.

All non-TYMCO purchased equipment and accessories are subject to that manufacturer’s guarantee to the extent that such guarantee may apply and are not subject to this warranty nor to any implied warranty by TYMCO or the Seller.

THIS WARRANTY BY TYMCO AND/OR SELLER IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NEITHER TYMCO NOR SELLER SHALL BE LIABLE FOR ANY DAMAGES OF ANY KIND OR NATURE, WHETHER DIRECT OR INDIRECT, INCIDENTAL OR CONSEQUENTIAL WITH RESPECT TO THE SALE, USE OR PURCHASE OF THE TYMCO PRODUCT. FURTHER, NEITHER TYMCO NOR SELLER SHALL BE LIABLE FOR ANY DAMAGES BY REASON OF LOSS OF PRODUCTION, DOWN TIME, LOSS OF PROFITS OR LOSS OF INCOME ARISING FROM ANY REASON WHATSOEVER.

NO PERSON IS AUTHORIZED TO GIVE ANY OTHER WARRANTIES OR TO ASSUME ANY OTHER LIABILITY ON TYMCO’S BEHALF UNLESS MADE IN WRITING BY TYMCO, AND NO PERSON IS AUTHORIZED TO GIVE ANY WARRANTIES OR TO ASSUME ANY LIABILITIES ON THE SELLER’S BEHALF UNLESS MADE IN WRITING BY THE SELLER.

This warranty gives you specific legal rights, and you may also have other rights that vary from state to state.

TRUCK

TABLE OF CONTENTS ISUZU

SECTION A	PAGE
Function	A-1
Troubleshooter's Guide	A-1
Service and Maintenance	A-1
Truck Make Ready Drawing	A-2
Parts List	A-3
Parabolic Mirror Assembly	A-5
Heated/Motor Mirror Assembly Schematic	A-6

FUNCTION

The purpose of the truck is to adequately and safely serve as the prime mover for the sweeper unit and its accessories. Its specification parameters are such that this can be accomplished from very slow sweeping speeds up to and including legal speed limits with the hopper empty or fully loaded.

It is intended that the operator be as comfortable as possible, thus, TYMCO Sweepers are mounted on a standard automotive type truck. The truck specifications for mounting a TYMCO Model DST-4 is a truck with a minimum GVW rating of 17,950 lbs. (8142 kg) and cab to axle dimension of 112 inches (284 cm), and having six (6) size 225/70R - 19.5 F tires, and an automatic transmission.

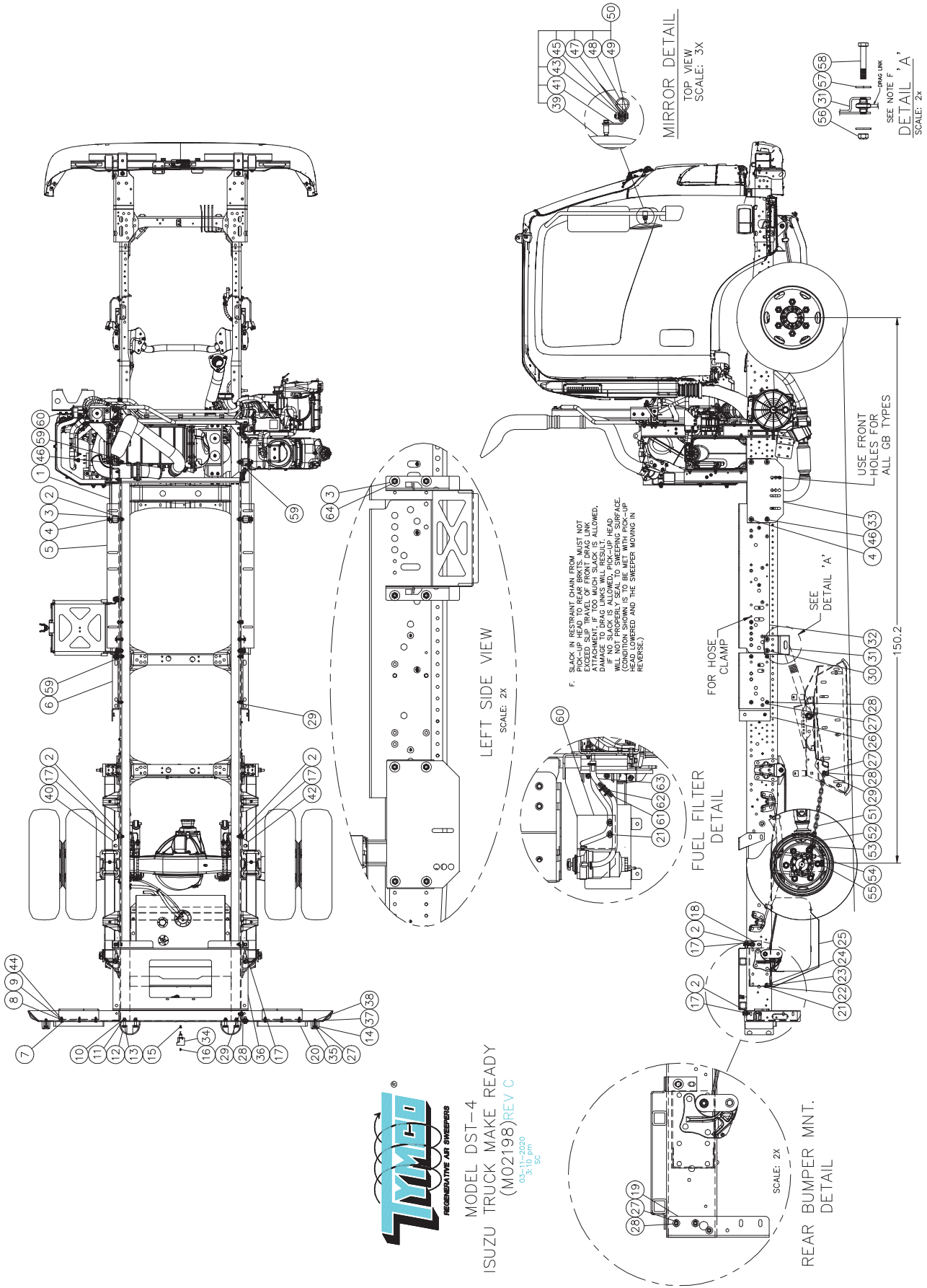
TROUBLESHOOTING, SERVICE AND MAINTENANCE

In order to simplify the service and maintenance of the truck on which your unit is mounted, refer to the truck operators manual for the routine service and maintenance procedures and schedules (by days, hours, miles, etc.).

Since the unit will be driven in the dirtiest part of the street, namely the gutter, where conditions are the worst, TYMCO suggests that for longer truck life the manufacturers servicing and maintenance schedules be performed somewhat more often than normal.



WARNING: Before servicing, stop auxiliary engine and remove ignition key or disconnect negative battery cable.



MODEL DST-4
ISUZU TRUCK MAKE READY
(M02198)REV C

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**TYMCO MODEL DST-4
ISUZU TRUCK ASSEMBLY PARTS LIST
DWG-M02198**

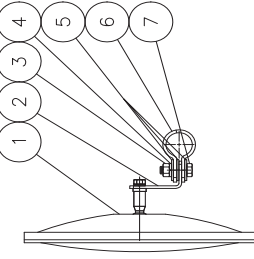
ITEM	QTY.	PART NO	DESCRIPTION
	1	507582	2012+ Isuzu Truck Make Ready (150" WB)
1	(See G.B. Section)	506836	LH Gutter Broom Extension Plate
2	18	10231	Nut - 1/2-13 Top Lock
3	44	10311	1/2" Flat Washer
4	4	30102	Bolt - 1/2-13 x 4 HHCS Grade 5
5	1	5019857	Mount - Sil DST-4 LH
6	1	506834	Upstop Mount - LH
7	6	20163	Bolt - 1/4-20 x 1 1/4 Phil Truss
8	16	10303	Flat Washer 1/4
9	14	10304	Lock Washer - 1/4 DIA
10	8	10201	Nut - 1/2-13 Hex
11	8	10312	1/2" Lock Washer
12	2	10579	Rubber Bumper
13	8	20111	Bolt - 1/2-13 x 2 1/4 HHCS Grade 5
14	2	30508	Rubber Bumper - Small
15	2	20201	Nut Insert - #10-32
16	2	10109	Screw - #10-32 x 7/8 Pan Head
17	14	10139	Bolt - 1/2-13 x 1 1/2 HHCS Grade 5
18	2	5019884	Bumper Tie Down
19	2	5019885	Bumper Mount Angle
20	1	506874	Isuzu Rear Bumper
21	4	10117	Bolt - 5/16-18 x 1 HHCS
22	12	10305	5/16" - Flat Washer
23	12	10306	5/16" - Lock Washer
24	12	10205	Nut - 5/16-18 Hex
25	1	5019851	Fuel Tank Guard
26	1	506833	Upstop Mount - RH
27	45	10307	3/8" Flat Washer
28	23	10129	Bolt - 3/8-16 x 1-1/4 HHCS
29	26	10225	Nut - 3/8-16 Top Lock
30	4	40138	Bolt - 1/2-13 x 1 3/4 HHCS Gr. 8
31	2	506835	Slip Yoke - Drag Link Bracket
32	1	5019856	Mount Sil - DST4 RH
33	(See G.B. Section)	506912	RH Gutter Broom Extension Plate
34	(Comes w/ Truck)	13004	License Plate Light
35	4	10132	Bolt - 3/8-16 x 2 HHCS
36	1	506875	Rear Frame Mount Weldment
37	4	10308	3/8" Lock Washer
38	4	10209	Nut - 3/8-16 Hex
39	2	12871	Parabolic Mirror 8"
40	1	5018359	Mid Sil Mount - LH
41	2	22364	Mirror "J" Bracket
42	1	5018358	Mid Sil Mount - RH
43	2	10248	Nut - 5/16-18 Hex SS
44	14	10203	Nut - 1/4-20 Hex
45	2	10332	Lock Washer - 5/16 SS
46	4	10160	Bolt - 1/2-13 UNC
47	6	10336	Flat Washer - 5/16 SS
48	2	11384	Dove Tail Clamp - 1"
49	2	20143	Bolt - 5/16-18 x 1" HHCS
50	2	506851	Parabolic Mirror Assembly

A

ITEM	QTY.	PART NO	DESCRIPTION
51	2	5012666	1/4" Chain - 16 Links
52	2	12154	Round Pin Anchor Shackle
53	2	12155	Hitch Pin
54	2	5018539	U-Bolt w/High Hex Nuts
55	2	5018242	Reverse Chain Bracket
56	2	10233	Nut - 3/4-10 Top Lock
57	4	10301	3/4 Flat Washer
58	2	30172	Bolt - 3/4-10 x 3 3/4 HHCS Gr. 8
59	2	5020550	Gutter Broom Spacer
60	1	5022158	Fuel Filter Mount Bracket
61	1	30839	Fitting - 3/8" Hose Mender
62	2	11333	Hose Clamp - 7/32 to 5/8"
63	1	5021531	Hose - 3/8 Fuel x 9"
64	4	10141	Bolt - 1/2-13 x 2.0 HHCS
Not Shown	1	(Comes w/Truck)	Wire Harness - Ground Cable
Not Shown	1	5018539	U-Bolt
Not Shown	1	5019823	Wire Harness Bracket
Not Shown	1	507589	Starter/Battery Cable
Not Shown	1	508957	BlueLogic® Control Console Assembly - T4F
Not Shown	1	509041	Wire Harness - Positive Battery Ext.
Not Shown	2	13469	Stud Extension - Battery - 3/8"-16
Not Shown	6	21588	Pigtail Harness - 3 Wire
Not Shown	2	509839	Mount Bracket - LED Tail Light
Not Shown	6	21585	Grommet - 45 Series LED Tail Light
Not Shown	2	21582	Amber Turn Lamp - 45 Series LED
Not Shown	2	21583	Red Stop/Tail Lamp - 45 Series LED
Not Shown	2	21584	Clear Backup Light - Non-LED

PARABOLIC MIRROR ASSEMBLY
 CONV. CAB - 435/500X/600
 504954

ITEM	PART NO.	QTY	DESCRIPTION
1	22318	1	10.5" ROUND CONVEX MIRROR-CENTER MNT. SS HEAD
A.	12737	0	12" ROUND CONVEX MIRROR-CENTER MNT. SS HEAD
2	12865	3	ADJUSTABLE MOUNT
3	11368	2	CLAMP-3/4" 2 PC.
4	12866	3	MOUNTING FOOT
5	40108	8	BOLT-1/4-20 X 1.0 HHCS S.S.
6	10335	12	1/4-FLAT WASHER S.S.
7	20204	8	NUT-1/4-20 NYLON LOCK SS
8	20536	2	RUBBER GROMMET-0.313 I.D. X 1.0 O.D.
9	10348	4	WASHER-0.250 I.D. X 1.0 O.D. FENDER

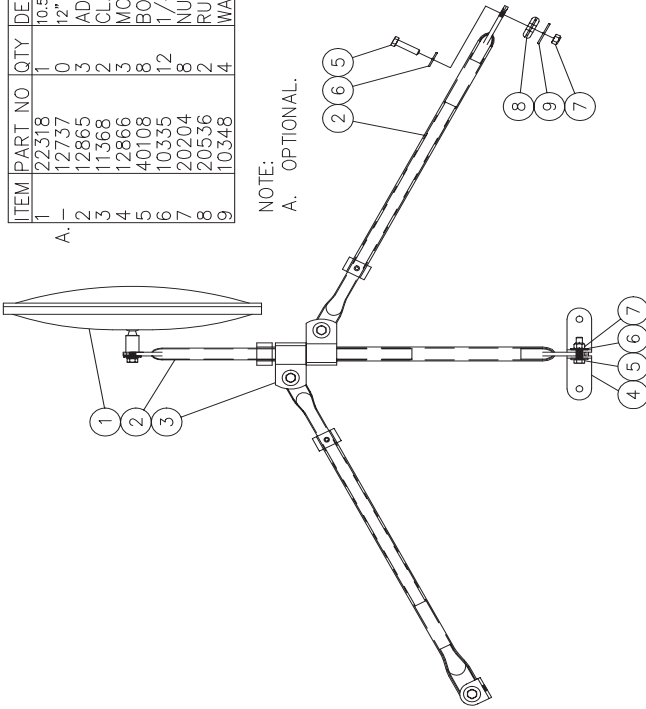


PARABOLIC MIRROR ASSEMBLY
 CABOVER - 210/210h/435/DST-4
 506851

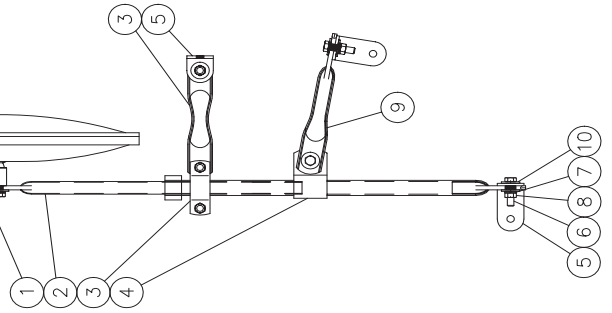
ITEM	PART NO.	QTY	DESCRIPTION
1	22518	1	10.1/2" ROUND CONVEX MIRROR
2	12737	1	12" ROUND CONVEX MIRROR(OPTIONAL)
3	22364	1	MIRROR "J" BRACKET
4	10248	1	NUT- 5/16-18 HEX SS
5	10332	3	LOCK WASHER 5/16 SS
6	11384	1	DOVE TAIL CLAMP 1.00"
7	20143	1	BOLT- 5/16-18 X 1.00 HHCS SS

PARABOLIC MIRROR ASSEMBLY
 CONV. CAB - 210
 507474

ITEM	PART NO.	QTY	DESCRIPTION
1	22518	1	10.5" ROUND CONVEX MIRROR-CENTER MNT. SS HEAD
2	12737	0	12" ROUND CONVEX MIRROR-CENTER MNT. SS HEAD
3	12865	1	MAIN ADJUSTABLE MOUNT
4	22479	1	4" LFC
5	11368	1	CLAMP-3/4" 2 PC.
6	12866	3	MOUNTING FOOT
7	40108	4	BOLT-1/4-20 X 1.0 HHCS S.S.
8	10331	4	1/4-LOCK WASHER S.S.
9	10247	4	NUT-1/4-20 HEX S.S.
10	12870	1	BRACE-MOUNT
	10335	8	1/4-FLAT WASHER S.S.
NOT SHOWN			
-	10284	3	NUT-1/4-20 INSERT
-	10335	3	1/4-FLAT WASHER SS
-	40108	3	BOLT-1/4-20 X 1.0 HHCS SS
-	10345	3	1/4-BONDED SEAL WASHER

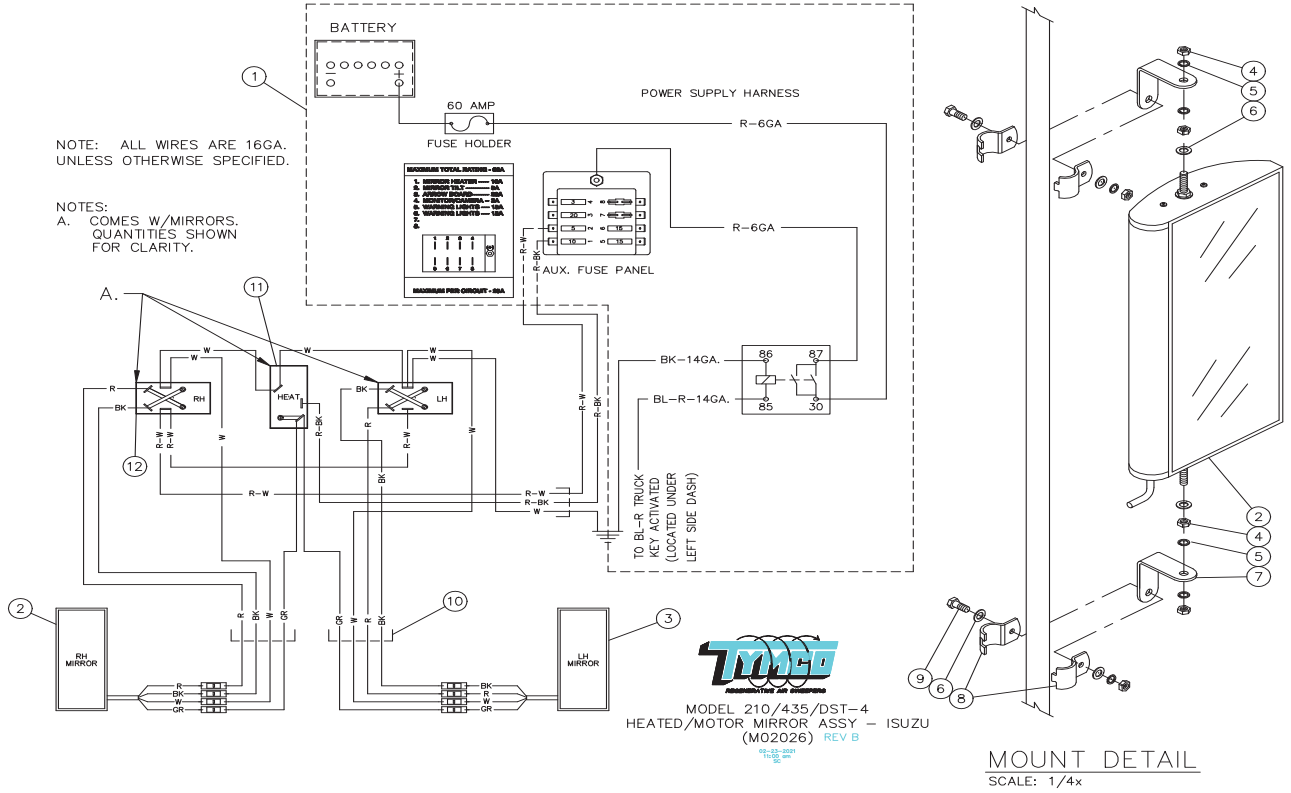


NOTE:
 A. OPTIONAL.



ALL MODELS
 PARABOLIC MIRROR ASSEMBLIES
 (M01231) REV D
 06-17-2021
 11:23 am
 SC

A



210/435/DST-4 HEATED/MOTOR MIRROR ASSEMBLY - ISUZU DWG-M02026

ITEM	QTY.	PART NO.	DESCRIPTION
1	1	505773	Heated/Motor Mirror Assembly - Isuzu
1	1	505798	Aux. Power Distribution (Isuzu)
2	1	11870	RH Power Mirrors
3	1	11869	LH Power Mirrors
4	12	10248	Nut - 5/16-18 Hex SS
5	12	10332	5/16 - Lock Washer SS
6	12	10336	5/16 - Flat Washer SS
7	4	5019993	Mount Bracket
8	4	11384	1" SS Dovetail Clamp
9	4	20143	Bolt - 5/16-18 x 1 HHCS SS
10	2	505774	Wire Harness - Switch
11	1	13658	Switch - Mirror (Amber) (Shown for Clarity)
12	2	13659	Switch - Mirror (Black) (Shown for Clarity)

SIDE/ENGINE DOOR

TABLE OF CONTENTS

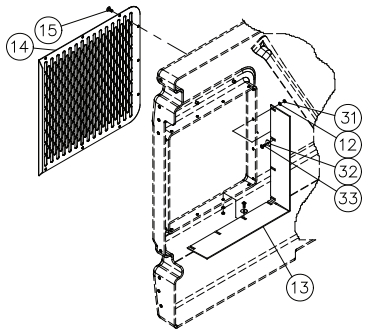
SECTION B	PAGE
Function	B-1
Side Door & Engine Door Drawing	B-2
Parts Lists	B-3

FUNCTION

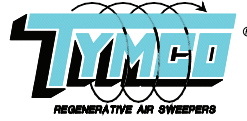
The Model DST-4 design includes two large side doors that swing outwards to give access to the auxiliary engine on the curb side and the blower housing on the street side. All Access doors on the Model DST-4 sweeper have locking catches for securing sweeper components and stored equipment.

 **WARNING:** Before servicing, stop auxiliary engine and remove ignition key or disconnect negative battery cable.

B

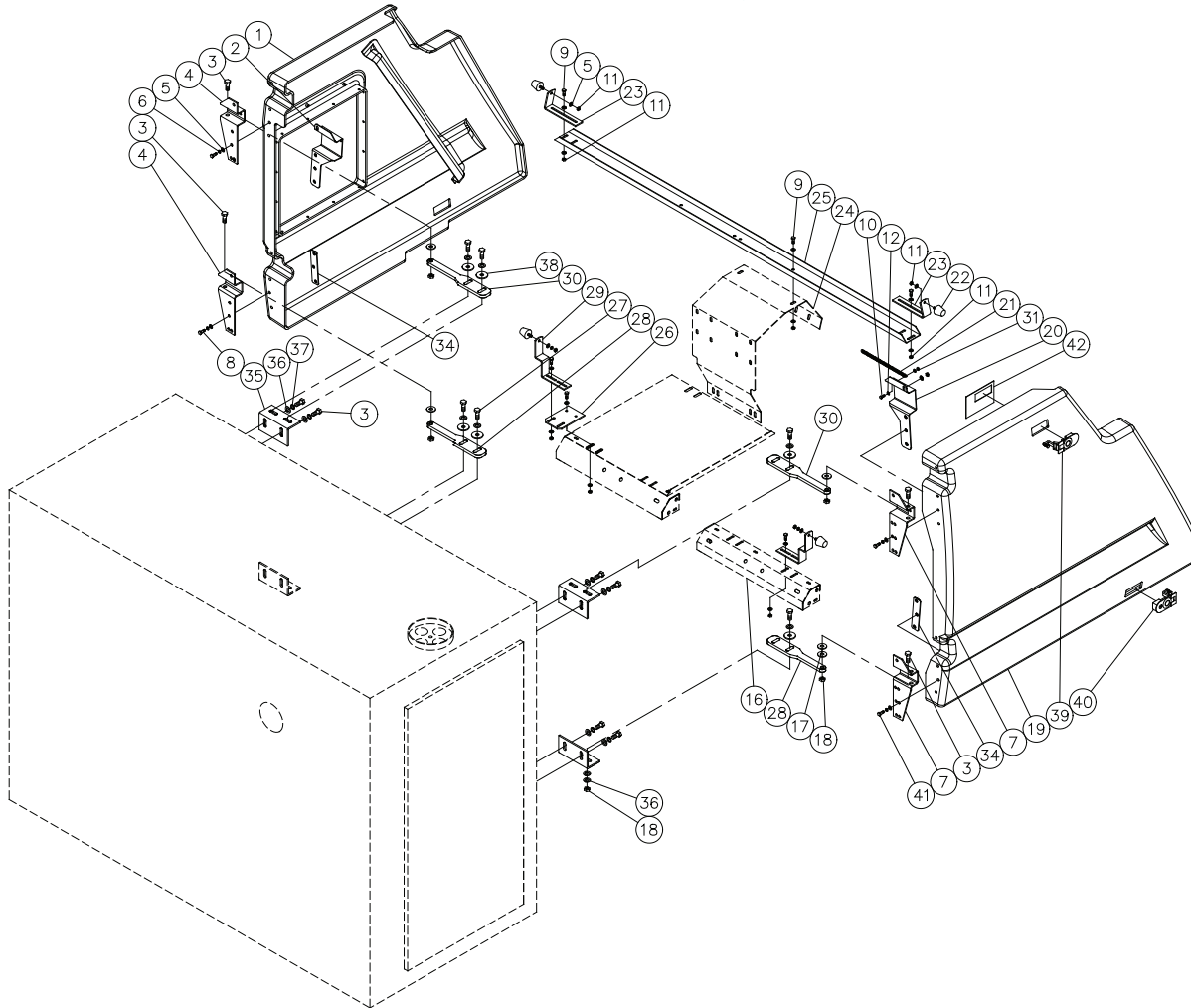


SCREEN DETAIL



MODEL DST-4 SIDE DOOR ASSEMBLY (M01491) REV B

01-15-2010
9:26 am
DG



**TYMCO MODEL DST-4
SIDE AND ENGINE DOOR ASSEMBLY
DWG-M01491**

ITEM	QTY.	PART NO	DESCRIPTION
	1	505698	Side and Engine Door Assembly - DST-4
1	1	507220	Engine Door
2	1	507225	Upper Reinforcement - RH
3	10	10139	Bolt - 1/2-13 x 1-1/2 HHCS
4	2	5017719	Hinge Swingout Door (RH)
5	44	10305	5/16" Flat Washer
6	16	10306	5/16" Lock Washer
7	2	5017709	Hinge - Swingout Door (LH)
8	16	10118	Bolt - 5/16-18 x 1-1/4 HHCS
9	12	10117	Bolt - 5/16-18 x 1 HHCS
10	2	10111	Bolt - 1/4-20 x 1 HHCS
11	20	10272	Nut - 5/16-18 Hex Kept
12	20	10303	1/4 - Flat Washer
13	4	5017971	Air Scoop (Top/Bottom) - Engine Door
14	1	5020238	Radiator Screen
15	16	20193	Screw - 1/4-20 x 3/4 Pan Head Truss
16	(Shown for Clarity)	506892	Fender Support
17	8	10360	Nylon Washer - Black - 1.375 O.D.
18	12	10231	Nut - 1/2-13 Top Lock
19	1	507221	Blower Door
20	1	507226	Upper Reinforcement - LH
21	2	5018004	Chain - Swingout Door
22	4	20562	Bumper - Latch Catch - Swingout Door
23	2	5017924	Top Catch - Swingout Door Latch
24	(Shown for Clarity)	5017674	Mounting Bracket - Top Latch Catch
25	1	5017672	Channel - Swingout Door Catch
26	1	5019923	Bottom Catch Extension - Engine Side
27	8	10141	Bolt - 1/2-13 x 2 HHCS
28	2	5020288	Bottom Hinge
29	2	5017905	Bottom Catch - Swingout Door Latch
30	2	5017965	Hinge Mount - Swingout Door
31	18	10274	Nut - 1/4-20 Kept
32	16	10348	Fender Washer - 1/4 I.D. x 1.0 O.D.
33	16	30148	Screw - 1/4-20 x 1 PAN HD Truss
34	2	507224	Bottom Reinforcement Plate
35	4	5018349	Side Door Mount Bracket
36	32	10311	1/2" Flat Washer
37	10	10312	1/2" Lock Washer
38	10	10378	Washer - .531 I.D. x 1.75 O.D. x .156
39	2	12777	Latch - Sealed Lever
40	2	12778	Latch - Sealed Lever w/Lock
41	16	10118	Bolt - 5/16-18 x 1 1/4 HHCS
42	4	5020321	Backing Plate - Side Door Latch
Not Shown	8	12348	Retaining Clip - Gas Cylinder
Not Shown	4 (Approx)	5017968	12GA. Shim - Hinge Mount - Swingout Door
Not Shown	4 (Approx)	5017969	16GA. Shim - Hinge Mount - Swingout Door

FRAME

TABLE OF CONTENTS

SECTION C	PAGE
Function	C-1
Frame Assembly Drawing	C-2
Parts List	C-3

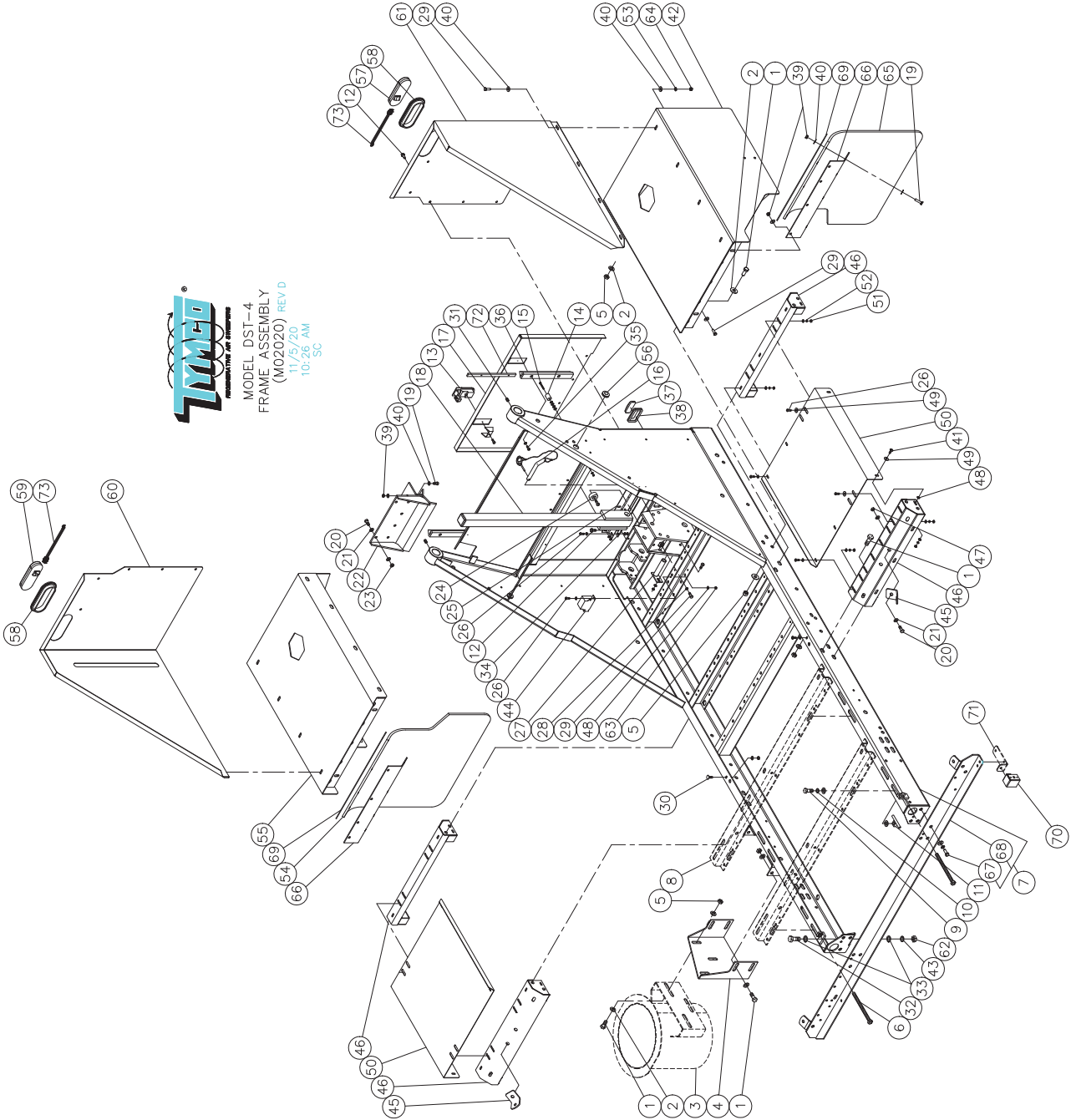
FUNCTION

The Frame Assembly is designed to adequately support all of the major sweeper assemblies or systems with exception of the gutter broom and the control panel. A number of the parts associated with the frame are bolted onto the frame to make replacement easy and to facilitate ease in initial assembly at the factory. The frame has a high strength to weight ratio.

WARNING: Before servicing, stop auxiliary engine and remove ignition key or disconnect negative battery cable.



When working under or around raised hopper **ALWAYS** shift safety prop under its socket and pin in position.



**TYMCO MODEL DST-4
FRAME ASSEMBLY PARTS LIST
DWG-M02020**

ITEM	QTY	PART NO	DESCRIPTION
	1	507034	Frame Assembly - Tier 3 Isuzu
1	23	10167	Bolt - 1/2-13 x 1-1/4 HHCS
2	54	10311	1/2" Flat Washer
3	(Shown for Clarity)	505167	Suction Adapter Weldment
4	1	5017634	Mounting Bracket - Suction Adapter
5	23	10231	Nut - 1/2-13 Top Lock
6	2	500951	Adjustment Screw
7	1	505153	Sweeper Frame Weldment
8	(Shown for Clarity)	5010062	Power Unit Rail
9	8	10139	Bolt - 1/2-13 x 1-1/2 HHCS
10	8	10312	1/2" Lock Washer
11	8	500945	Butterfly Nut
12	10	10104	Bolt - 5/16-18 x 3/4 Taptite
13	2	12777	Latch - Sealed Lever
14	2	20547	Rubber Bumper - Rear Door
15	2	10179	Screw - #10-32 x 1-1/2 Pan Head Phillips
16	1	10431	Pin Assembly - Safety Prop
17	1	5017562	Rear Door - Outside
18	1	505216	Safety Prop Weldment
19	18	10118	Bolt - 5/16-18 x 1-1/4 HHCS
20	8	10129	Bolt - 3/8-16 x 1-1/4 HHCS
21	16	10307	3/8" Flat Washer
22	1	505217	Socket Weldment - Safety Prop
23	6	10275	Nut - 3/8-16 Kept
24	1	10589	Rubber Bumper - Safety Prop
25	1	5016889	Hinge - Rear Door
26	10	10111	Bolt - 1/4-20 x 1 HHCS
27	1	501597	Dump Pin Weldment - Safety Prop
28	1	20206	Nut - 5/16-18
29	17	10117	Bolt - 5/16-18 x 1 HHCS
30	2	20192	Bolt - 5/16-18 x 3/4 C.H.
31	2	40129	Screw - 3/8-24 x 5/8 Set Knurled Point
32	8	10153	Bolt - 5/8-18 x 1-3/4 HHCS
33	16	10385	5/8" Flat Washer
34	1	5018060	Mount Bracket - Rear Door Hinge
35	4	10110	Bolt - 1/4-20 x 3/4 HHCS
36	2	5021231	Bumper, Rubber
37	3	21572	Clearance Lamp - Red - LED
38	3	11591	Grommet - Clearance Lamp
39	6	10272	Nut - 5/16-18 Kept
40	23	10305	5/16" Flat Washer
41	12	20135	Screw - 1/4-20 x 1/2 Truss
42	1	507009	Fender Weldment - LH
43	8	10314	5/8" Lock Washer
44	1	12074	Back-Up Alarm
45	2	5010057	Spring Bracket
46	4	506892	Fender Support Weldment
47	2	10225	Nut - 3/8 Top Lock
48	36	10303	1/4" Flat Washer
49	8	10348	Fender Washer - 1/4

C

ITEM	QTY	PART NO	DESCRIPTION
50	2	5019895	Fender
51	12	10203	Nut - 1/4-20 Hex
52	16	10304	Lock Washer - 1/4 DIA
53	8	10306	Lock Washer - 5/16
54	1	10515	Mud Flap - RH
55	1	507010	Fender Weldment - RH
56	2	10578	Grommet - 1.313 x .688 ID
57	1	13748	LED Oval Amber Light - 1
58	2	20587	Grommet - LED Light
59	1	13749	LED Oval Amber Light - 2
60	1	5020016	Water Tank Cover - RH
61	1	5020015	Water Tank Cover - LH
62	8	10242	Nut - 5/8-18 Hex
63	10	10274	Nut - 1/4-20 Kept
64	8	10205	Nut - 5/16-18 Hex
65	1	10514	Mud Flap - LH
66	2	5014512	Mud Flap Extension
67	6	10128	Bolt - 3/8-16 x 1 HHCS
68	1	505629	Front Crossmember
69	2	5014511	Strap - Mud Flap
70	1	5012987	Mount - Dump Switch
71	(Shown for Clarity)	5020553	PUH Spring Bracket
72	2	5021230	Insert, Bumper
73	2	21598	Pigtail Plug Warning Lights

NOT SHOWN

1	5015817	TYMCO Model Plate
1	509382	Harness - Rear Lights
1	12107	Dump Door Switch
1	21799	Work Light - LED
1	506814	Harness - Clearance Lights
-	506824	Harness - Second Work Light (Optional)
1	509383	Schematic - Truck/Sweeper Rear Lights

HOPPER

TABLE OF CONTENTS

SECTION D	PAGE
Function	D-1
Troubleshooter’s Guide	D-2
Hopper Assembly Drawing	D-3
Hopper Assembly Parts List	D-4
Dump Door Assembly Drawing	D-6
Dump Door Assembly Parts List	D-7
Dump Door Drawing & Parts List	D-8
Inspection Door Drawing & Parts List	D-9
Service and Maintenance . . . . .	.D-10

FUNCTION

The hopper is designed to provide a containment area for material picked up during sweeping operations and/or auxiliary hand hose use. Its shape serves to distribute the load evenly and centrally over the rear axle and aid in breaking loose the load as it shifts toward the hopper door opening when dumping. The configuration of the hopper, when fully raised, allows dumping into containers up to 72" (182.9 cm) in height.

By engaging the dump toggle switch located between the blower housing and the front storage compartment with the auxiliary engine at idle the dump door will open and then the hopper will raise and expel its contents. Energizing the dump switch in the opposite direction will lower the hopper and close the dump door.

A large screen at the top of the hopper stops lightweight debris from entering the dust separator and blower housing.

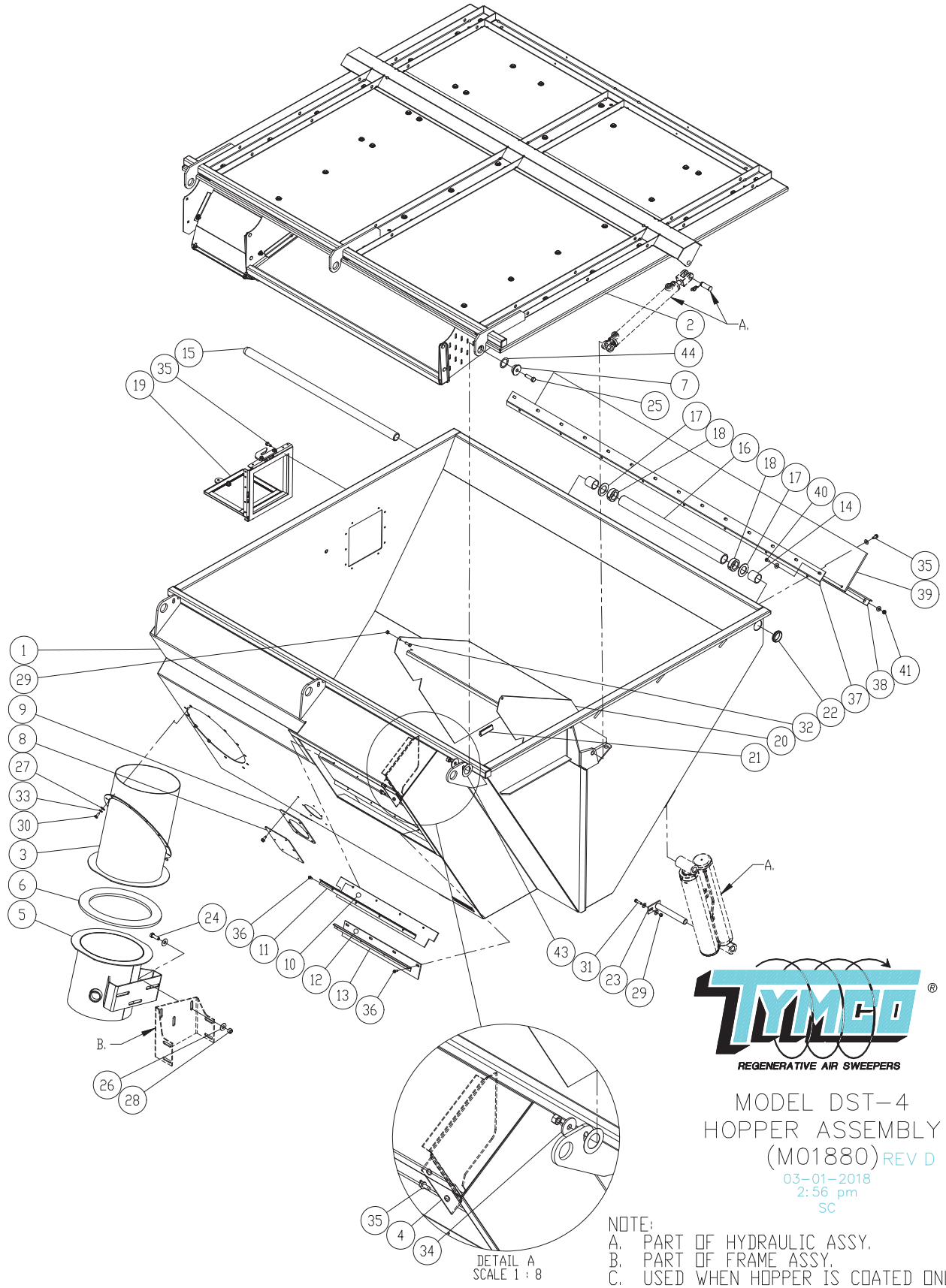
D

TROUBLESHOOTER'S GUIDE



WARNING: Before servicing, stop auxiliary engine and remove ignition key or disconnect negative battery cable. When working under or around raised hopper, **ALWAYS** install pin in lower safety strut.

PROBLEM	CAUSE	SOLUTION
Low sweeper efficiency	Faulty seals	Check door seal. Check suction intake seal. Check separator seal.
Excessively dusty condition	Screen clogged	Check cleanliness of screen.
	Dust control system inoperable	Check water tank (See Water System Troubleshooting Section)
Rear door will not open or close and hopper will not raise or lower	Loss of hydraulic pressure	See HYDRAULIC SYSTEM Section.
	Hydraulic valve will not operate	(See Hydraulic Troubleshooting Section.)
	Hydraulic leak	Check for leak in hydraulic system.
Rear door creeps open	Leak in hydraulic lock valve	Check for leak in hydraulic lock valve or hoses. Replace seals in valves. Replace valve.



MODEL DST-4
HOPPER ASSEMBLY
(M0180) REV D

03-01-2018
2:56 pm
SC

NOTE:
A. PART OF HYDRAULIC ASSY.
B. PART OF FRAME ASSY.
C. USED WHEN HOPPER IS COATED ONLY.

D

TYMCO MODEL DST-4 HOPPER ASSEMBLY PARTS LIST DWG-M01880

ITEM	QTY.	PART NO.	DESCRIPTION
	1	506761	Hopper Assembly
1	1	506583	Hopper Weldment
2	1	506580	Dump Door Assembly
3	1	505166	Suction Tube Weldment
4	1	5019638	Filler (LH)
5	1	505690	Suction Adapter Weldment Modified
6	1	505313	Seal - Suction Tube
7	3	8010987	1.5 Bushing - Dump Door
8	1	5017973	Cover Plate - Hopper Drain
9	1	5018025	Seal - Drain
10	1	5017334	Upper Flap Seal
11	1	5010181	Upper Clamp - Seal
12	1	5017335	Lower Flap Seal
13	1	5017381	Lower Clamp
14	2	5017554	PTFE Bushing - Hopper Pivot
15	1	5017555	Shaft - Hopper Pivot
16	1	5010013	Cover - Hinge Pin
17	2	5017980	Shim - Centering Hopper/Frame
18	2	22160	1-1/2" Set Collar W/ 3/8-15 x 3/8 Set Screw
19	1	507509	Inspection Door Assembly
20	1	505149	Skimmer Hood Weldment
21	2	5017031	Extruded Bumper - Scoop
22	4	20598	Rubber Grommet - 1-45/64 ID x 2-1/2 OD x 1/4 Grv.
23	4	505147	Dump Pin Weldment
24	3	10139	Bolt - 1/2-13 x 1-1/2 HHCS
25	3	10140	Bolt - 1/2-13 UNC x 1-3/4
26	6	10311	1/2" Flat Washer
27	22	10305	5/16" Flat Washer
28	6	10231	Lock Nut - 1/2 UNC
29	6	10229	Lock Nut - 5/16 UNC
30	11	20112	Bolt - 5/16-18 x 3/4 HHCS
31	4	10118	Bolt - 5/16-18 x 1-1/4 HHCS
32	2	10117	Bolt - 5/16-18 UNC x 1 HHCS
33	11	10306	5/16" Lock Washer
34	3	10378	1/2" Heavy Fender Washer
35	19	10104	Bolt - 5/16-18 x 3/4 Taptite
36	8	30104	Bolt - 1/4-20 x 3/4 HHCS Self Tap
37	1	5020549	Mount Bracket
38	1	5020548	Clamp
39	1	5020545	Curtain
40	1	20195	Truss Screw - 5/16-18 x 1
41	1	10272	Nut - 5/16-18 Kept
42	-	-	-
43	3	5021635	2 1/2" O.D. Shim
44	3	5021636	2" O.D. Shim
Not Shown	1	12415	Seal Adhesive

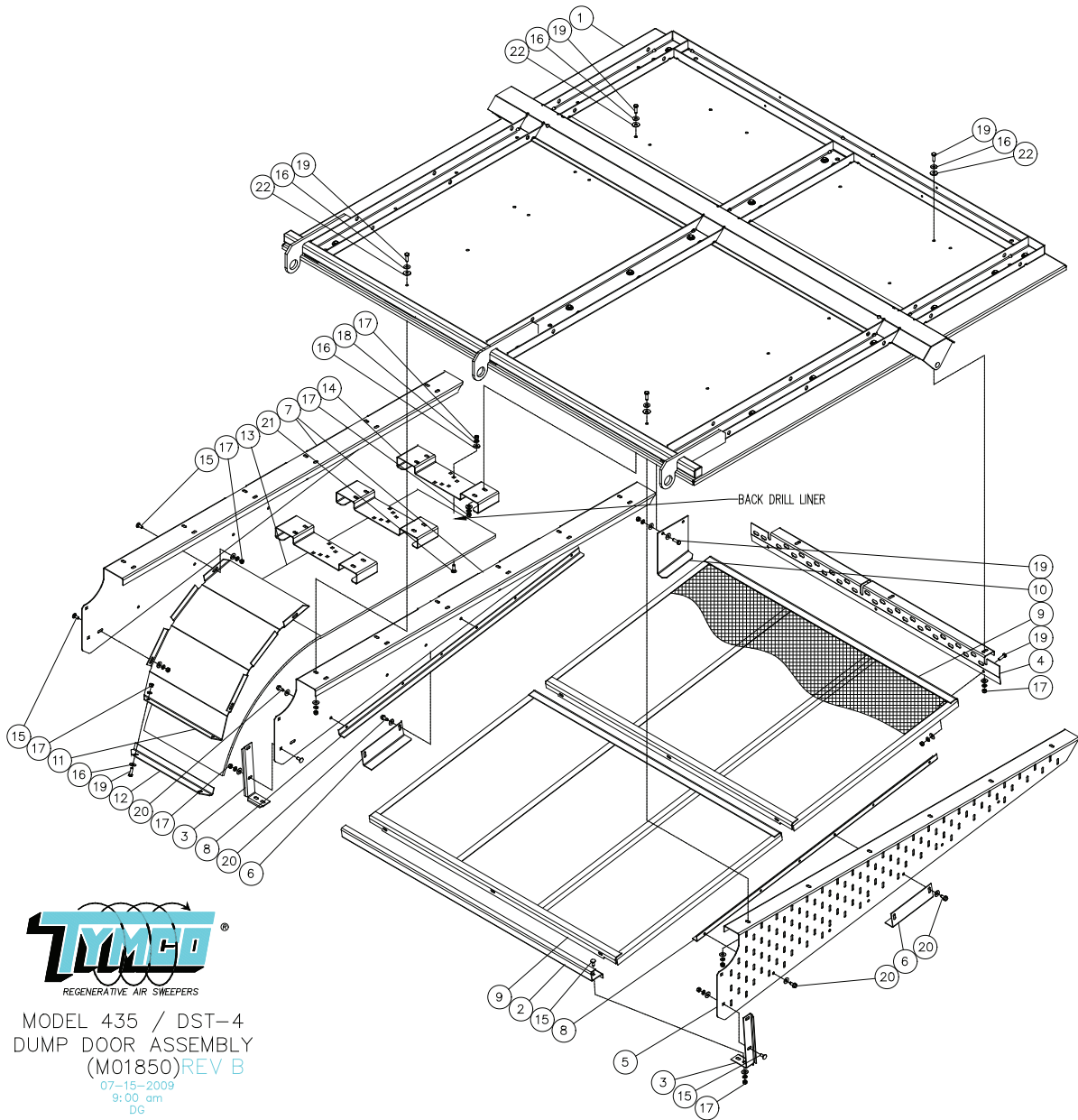
STAINLESS HOPPER OPTION

1	1	S506583	Hopper Weldment SS
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ITEM	QTY.	PART NO.	DESCRIPTION
2	1	S506580	Dump Door Assembly SS
3	1	S505166	Suction Tube Weldment SS
4	1	S5019638	Filler (LH) SS
8	1	S5017973	Cover Plate - Drain
19	1	S507509	Inspection Door Assembly
20	1	S505149	Skimmer Hood Weldment
24	3	20149	Bolt - 1/2-13 x 1-1/2 HHCS
25	3	40123	Bolt - 1/2-13 UNC x 1-3/4
26	6	10338	1/2" Flat Washer
27	22	10336	5/16" Flat Washer
28	6	20239	Lock Nut - 1/2 UNC
29	4	10248, 10306	Lock Nut - 5/16 UNC
30	11	20142	Bolt - 5/16-18 x 3/4 HHCS
31	4	20144	Bolt - 5/16-18 x 1-1/4 HHCS
32	2	20143	Bolt - 5/16-18 UNC x 1 HHCS
33	11	10332	5/16" Lock Washer
35	19	40133	Bolt - 5/16-18 x 3/4 Taptite
36	8	40192	Bolt - 1/4-20 x 3/4 HHCS Self Tap

NOTE: The stainless steel hopper BOM is NOT a complete list. The items in the stainless steel BOM replace the items in the Standard BOM. The items are numbered subsequent.

D



MODEL 435 / DST-4
DUMP DOOR ASSEMBLY
(M01850)REV B
07-15-2009
9:00 am
DG

**TYMCO MODEL 435/DST-4
DUMP DOOR ASSEMBLY PARTS LIST
DWG-M01850**

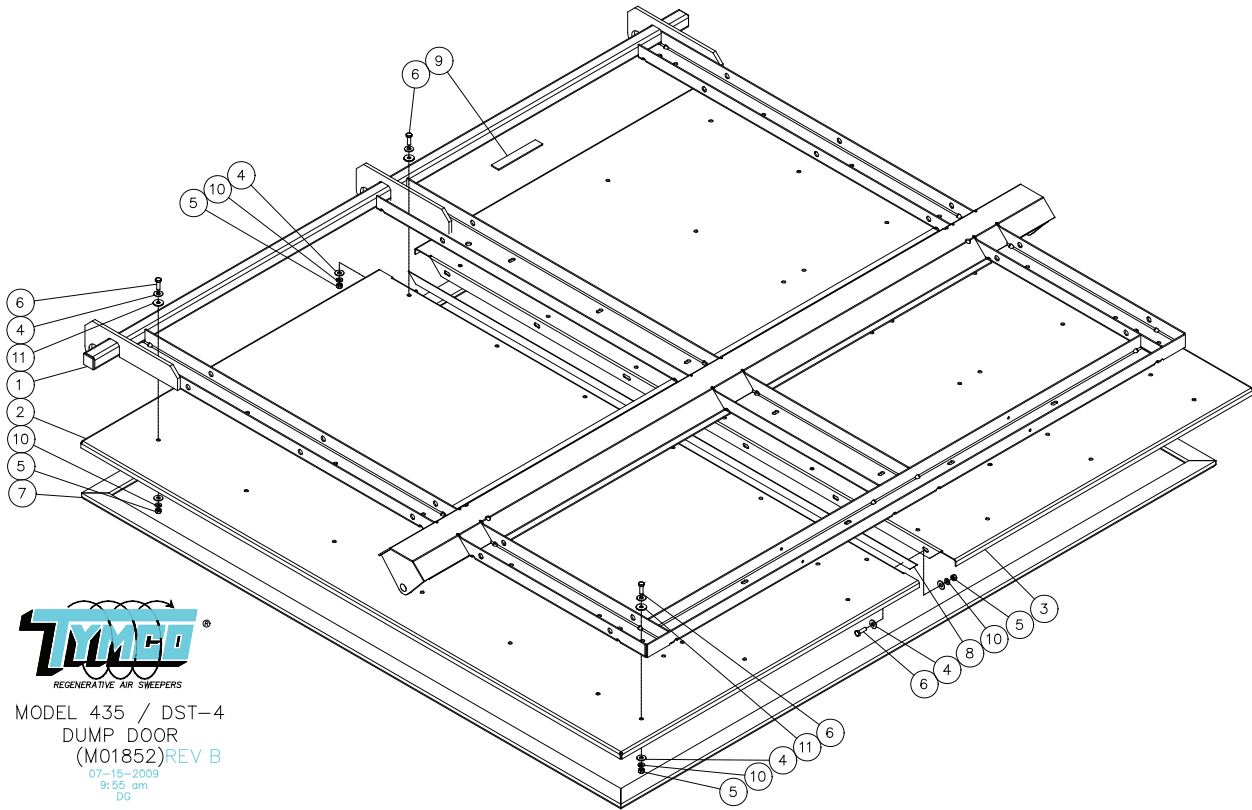
ITEM	QTY.	PART NO.	DESCRIPTION
	1	506580	Dump Door Assembly
1	1	506577	Dump Door
2	1	5019571	Support Channel
3	2	5019572	Hanger - Screen
4	1	5019573	Rear Mount - Screen
5	1	5019574	Sideboard (LH) - Screen
6	2	5019575	Middle Hanger - Screen
7	2	5019576	Sideboard (RH) - Screen
8	2	5019577	Stop Angle - Screen
9	2	506582	Screen Weldment
-	-	507425	Chip Seal Screen Weldment
10	1	5019581	Center Stop - Screen
11	1	5019582	Front Scroll - Inlet
12	1	5019583	Stop / Catch - Inlet Liner
13	1	506598	Liner - Inlet
14	3	5019584	Rear Retainer - Inlet Liner
15	12	20198	Carriage Bolt - 5/16-18 UNC x 3/4
16	82	10305	5/16" Flat Washer
17	44	10205	Nut - 5/16 UNC
18	44	10306	5/16" Lock Washer
19	31	10117	Bolt - 5/16-18 UNC x 1
20	12	10104	Self Tap - 5/16-18 UNC x 3/4
21	1	10125	Carriage Bolt - 5/16-18 UNC x 1
22	24	20309	5/16 - Steel Bonded Fender Washer

STAINLESS HOPPER OPTION

1	1	S506577	Dump Door SS
2	1	S5019571	Support Channel SS
3	2	S5019572	Hanger - Screen SS
4	1	S5019573	Rear Mount - Screen SS
5	1	S5019574	Sideboard (LH) - Screen SS
6	2	S5019575	Middle Hanger - Screen SS
7	2	S5019576	Sideboard (RH) - Screen SS
8	2	S5019577	Stop Angle - Screen SS
9	2	S506582	Screen Weldment SS
-	-	S507425	Chip Seal Screen Weldment
10	1	S5019581	Center Stop - Screen SS
11	1	S5019582	Front Scroll - Inlet SS
12	1	S5019583	Stop / Catch - Inlet Liner SS
14	3	S5019584	Rear Retainer - Inlet Liner SS
15	12	20156	Bolt - 5/16-18 x 3/4 CHCS SS
16	82	10356	5/16" Flat Washer SS
17	44	10248	Nut - 5/16-18 Hex SS
18	44	10332	5/16" Lock Washer SS
19	31	20143	Bolt - 5/16-18 x 1 HHCS SS
20	12	40133	Bolt - 5/16-18 x 3/4 Taptite SS
21	1	40176	Bolt - 5/16-18 x 1 CHCS SS

NOTE: The stainless steel dump door door BOM is NOT a complete list. The items in the stainless steel BOM replace the items in the Standard BOM. The items are numbered subsequent. The stainless steel dump door is standard on the stainless steel hopper option.

D

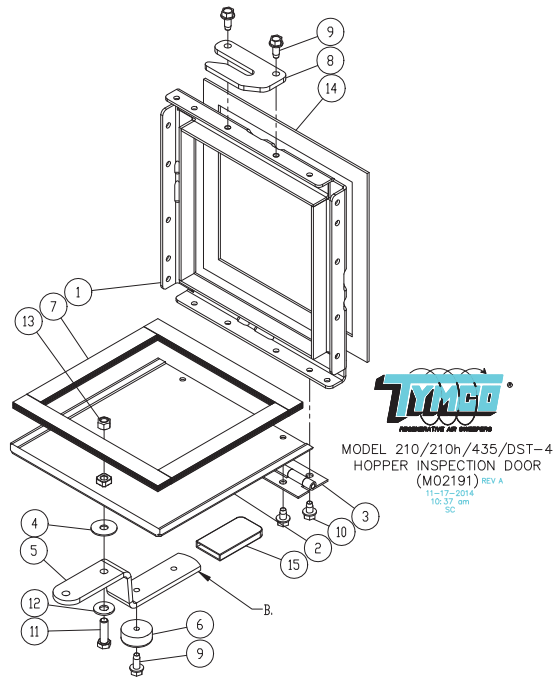


TYMCO MODEL 435 DUMP DOOR PARTS LIST DWG-M01852

ITEM	QTY.	PART NO.	DESCRIPTION
	1	506577	Dump Door
1	1	506578	Frame Weldment
2	1	5019554	Skin (LH)
3	1	5019553	Skin (RH)
4	58	10305	5/16" Flat Washer
5	29	10205	Nut - 5/16 UNC
6	29	10117	Bolt - 5/16-18 UNC x 1
7	1	506576	Seal
8	1	20501	Skin Seal - 70"
9	2	10591	Foam Pad - 6"
10	29	10306	5/16" Lock Washer
11	24	20309	5/16 - Steel Bonded Fender Washer
Not Shown	2	12415	Seal Adhesive

STAINLESS HOPPER OPTION

1	1	S506578	Frame Weldment SS
2	1	S5019554	Skin (LH) SS
3	1	S5019553	Skin (RH) SS
4	58	10356	5/16" Flat Washer SS
5	29	10248	Nut - 5/16-18 Hex SS
6	29	20143	Bolt - 5/16-18 x 1 HHCS SS
10	29	10332	5/16" Lock Washer SS



**TYMCO MODEL 210/210h/435/DST-4
INSPECTION DOOR PARTS LIST
DWG-M02191**

ITEM	QTY	PART NO	DESCRIPTION
	1	507509	Inspection Door Assembly
1	1	507486	Frame Weldment
2	1	507507	Inspection Door Weldment
3	1	5020407	SS Hinge
4	1	20314	1.25 O.D. x 0.390 I.D. x 0.062 TH-Flat Washer Nylon
5	1	5020499	Latch
6	1	10589	Bumper
7	1	5016105	Seal - Inspection Door
8	1	S5020496	Handle Catch SS
9	3	10104	Self Tap - 5/16-18 UNC x 3/4
10	4	30126	Self Tap - 5/16-18 UNC x 1/2
11	1	10129	Bolt - 3/8-16 UNC x 1 1/4
12	1	10307	Flat Washer - 3/8
13	1	10225	Lock Nut - 3/8 UNC
14	1	5015943	Rear Seal - Inspection Door
15	1	5021375	Handle Grip

STAINLESS STEEL HOPPER OPTION

1	1	S507486	Frame Weldment SS
2	1	S507507	Inspection Door Weldment SS
5	1	S5020499	Latch SS
9	3	40133	Self Tap - 5/16-18 UNC x 3/4 SS
10	4	40133	Self Tap - 5/16-18 UNC x 3/4 SS
11	1	40126	Bolt - 3/8-16 UNC x 1 1/2
12	1	10337	Flat Washer - 3/8 SS
13	1	20240	Nut - 3/8-16 Nylon Lock SS

NOTE: The stainless steel inspection door BOM is NOT a complete list. The items in the stainless steel BOM replace the items in the Standard BOM. The items are numbered subsequent. The stainless steel inspection door is standard on the stainless steel hopper option.

D

SERVICE & MAINTENANCE

REMEMBER: "A CLEAN MACHINE RESULTS IN LONGER LIFE AND MAXIMUM PERFORMANCE."

After sweeping route is completed, the first procedure in maintaining the unit must be to clean and wash unit thoroughly. Raise the hopper/door to access internal parts of the hopper. Wash all built-up mud from the dirt deflector scroll and surrounding areas. Make sure to clean mud and debris from between the deflector scroll and the hopper door.

Wash all debris from the screen and surrounding area. Raise the hopper to full height and wash out all remaining debris. Visually inspect all openings and seals for debris. Make sure that the skimmer hood swings freely when hopper is raised. Check hinge pin and dump cylinder pins for proper security. Wash any mud and debris in suction transition and suction hose.

When hopper washing has been completed, lower hopper until suction transition is almost touching its seal and leave in this position while sweeper is not in use to allow the seals to conform to their original shape. This will extend the wear life of the seals. Visually inspect the screen to insure snug fit against hopper front panel.



WARNING! When working under or around raised hopper, *ALWAYS shift safety prop under its socket and secure in position with pin.*

SEPARATOR

TABLE OF CONTENTS

SECTION E	PAGE
Function	E-1
Troubleshooter's Guide	E-1
Service & Maintenance	E-1
Separator Assembly Drawing	E-2
Separator Assembly Parts List	E-3

FUNCTION

The dust separator is intended to remove the major portion of fine dust from the air stream before the air is re-routed through the blower and back down to the pick-up head. A cleanout port on the right hand side of the separator allows for periodic cleanout.

TROUBLESHOOTER'S GUIDE



WARNING: Before servicing, stop auxiliary engine and remove ignition key or disconnect negative battery cable.

PROBLEM	CAUSE	SOLUTION
Excessively dusty condition	Faulty seals Separator clogged	Check seals Clean separator Check gripper plug and seal
	Skimmer slot clogged	Clean as required. Check daily.
	Dust control system not operative	See Section "J" in this manual.
	Skimmer hood clogged	Clean and check for freedom of movement while dumping

SERVICE & MAINTENANCE

REMEMBER: "A CLEAN MACHINE RESULTS IN LONGER LIFE AND MAXIMUM PERFORMANCE."

After sweeping through normal work hours, the first procedure in maintaining the unit should be cleaning and washing thoroughly.

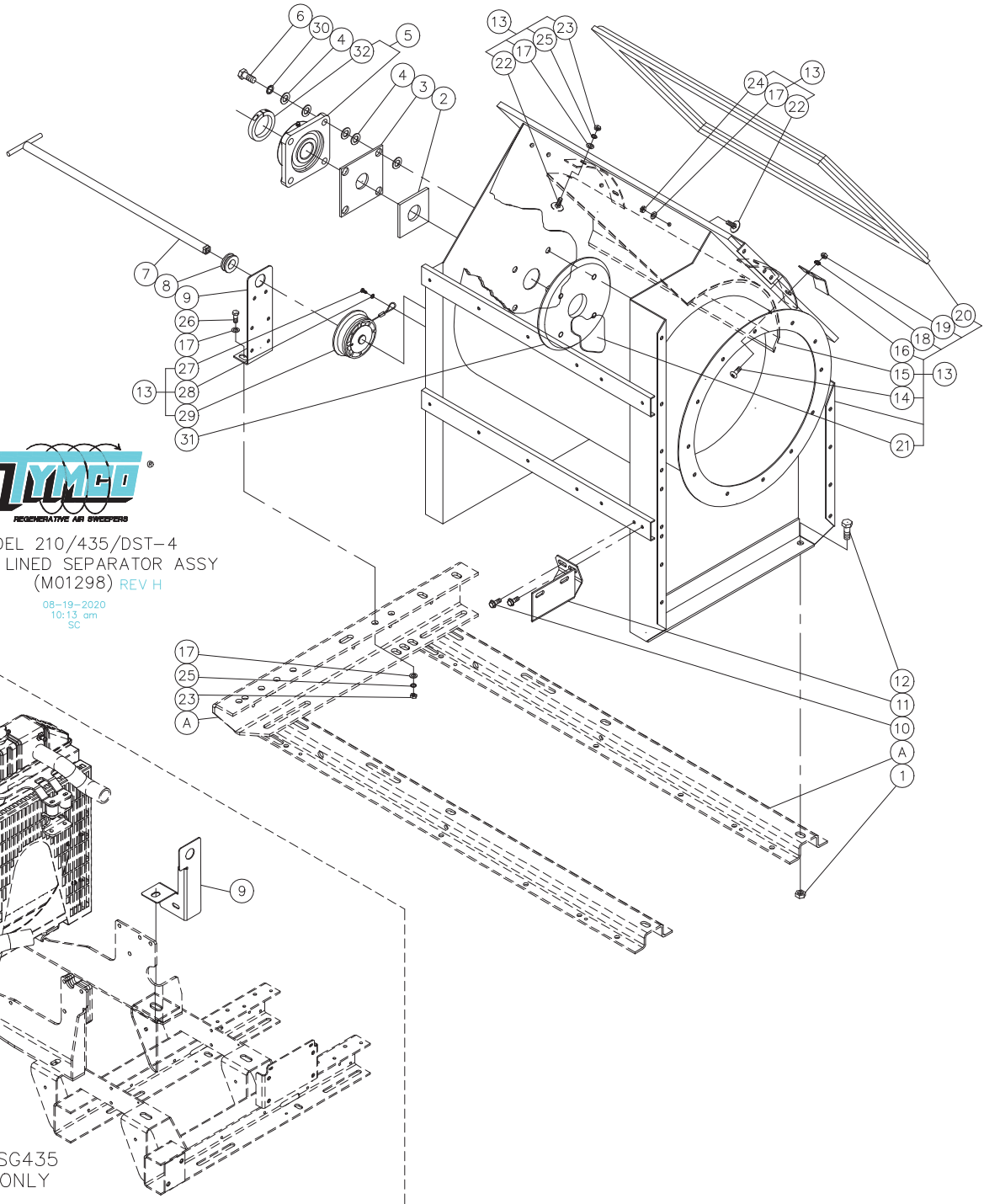
Raise hopper and PLACE PIN IN LOWER SAFETY STRUT ON CYLINDER. Open cleanout gripper plug and wash inside of separator. Inspect seals on separator opening and cleanout gripper plug for condition and remove any loose debris. Check separator skimmer slot to be free and clear of debris.



MODEL 210/435/DST-4
RUBBER LINED SEPARATOR ASSY
(M01298) REV H

08-19-2020
10:13 am
SC

FORD MSG435
ENGINE ONLY



**TYMCO MODEL 210/210h/435/DST-4
RUBBER LINED SEPARATOR ASSEMBLY PARTS LIST
DWG-M01298**

ITEM	QTY.	PART NO.	DESCRIPTION
	1	505023	Separator Assembly
1	4	10231	Nut - 1/2-13 Top Lock
2	1	5011381	Felt Seal - Flange Bearing
3	1	5011380	Retainer Plate - Seal
4	16	10311	1/2" Flat Washer
5	1	13566	Flange Bearing
6	4	10141	Bolt - 1/2-13 x 2 HHCS
7	1	507376	Handle Extension
8	1	30512	Grommet - 7/8 I.D. x 1 5/8 O.D.
9	1	5020381	Mount Bracket (Kubota Auxiliary Engine Only)
-	1	5022106	Mount Bracket (Ford Auxiliary Engine Only)
10	3	10104	Bolt - 5/16-18 x 3/4 Taptite
11	1	5017938	Brace - Housing
12	4	10167	Bolt - 1/2-13 x 1-1/4 HHCS
13	1	504992	Separator - Rubber Lined
14	2	40115	Bolt - 5/16-18 x 3/4 Elevator
15	1	5017330	Skimmer Plate - Rubber Coated
16	2	5017333	Filler Tab
17	6	10305	5/16" Flat Washer
18	4	10327	5/16" Ext. Tooth Lock Washer
19	2	20206	Nut - 5/16-18 Hex Jam
20	1	500452	Seal - Separator
21	1	5017332	Separator Liner
22	6	10123	Bolt - 5/16-18 x 1 Elevator
23	6	10205	Nut - 5/16-18 Hex
24	4	10272	Nut - 5/16-18 KEPT
25	2	10306	5/16 - Lock Washer
26	2	10118	Bolt - 5/16-18 x 1 1/4 HHCS
27	1	40155	Screw - #10-24 x 3/4 Pan Head Tap
28	1	10339	#10 Flat Washer
29	1	507094	4" Plug Assembly
30	4	10312	1/2" Lock Washer
31	1	5021710	Reinforcement Plate
32	(Comes w/13566)	13735	Lock Collar - Bearing

STAINLESS OPTION

13	1	S504992	Separator SS - Rubber Lined
14	4	50111	Bolt - 5/16-18 x 3/4 Elevator
17	2	10336	5/16 - Flat Washer
18	2	20310	5/16 - Ext. Tooth Lock Washer SS
19	4	20244	Nut - 5/16-18 Hex Jam
23	4	10248	Nut - 5/16-18 Hex
24	4	10248	Nut - 5/16-18 Hex
-	4	10332	5/16 Lock Washer
25	2	10332	5/16 Lock Washer
27	1	30138	Screw - #10-24 x 3/4 Pan Head Tap

NOTE: The Stainless Option Bill of Materials (BOM) is NOT a complete list. The items in the stainless option list replace the items in the standard BOM. The items are numbered subsequent.

BLOWER


TABLE OF CONTENTS

SECTION F	PAGE
Function	F-1
Troubleshooter's Guide	F-1
Blower Assembly Drawing	F-2
Parts List	F-3
Blower Wheel	F-5

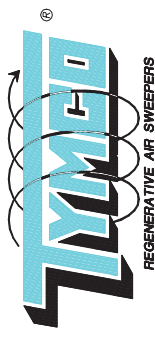
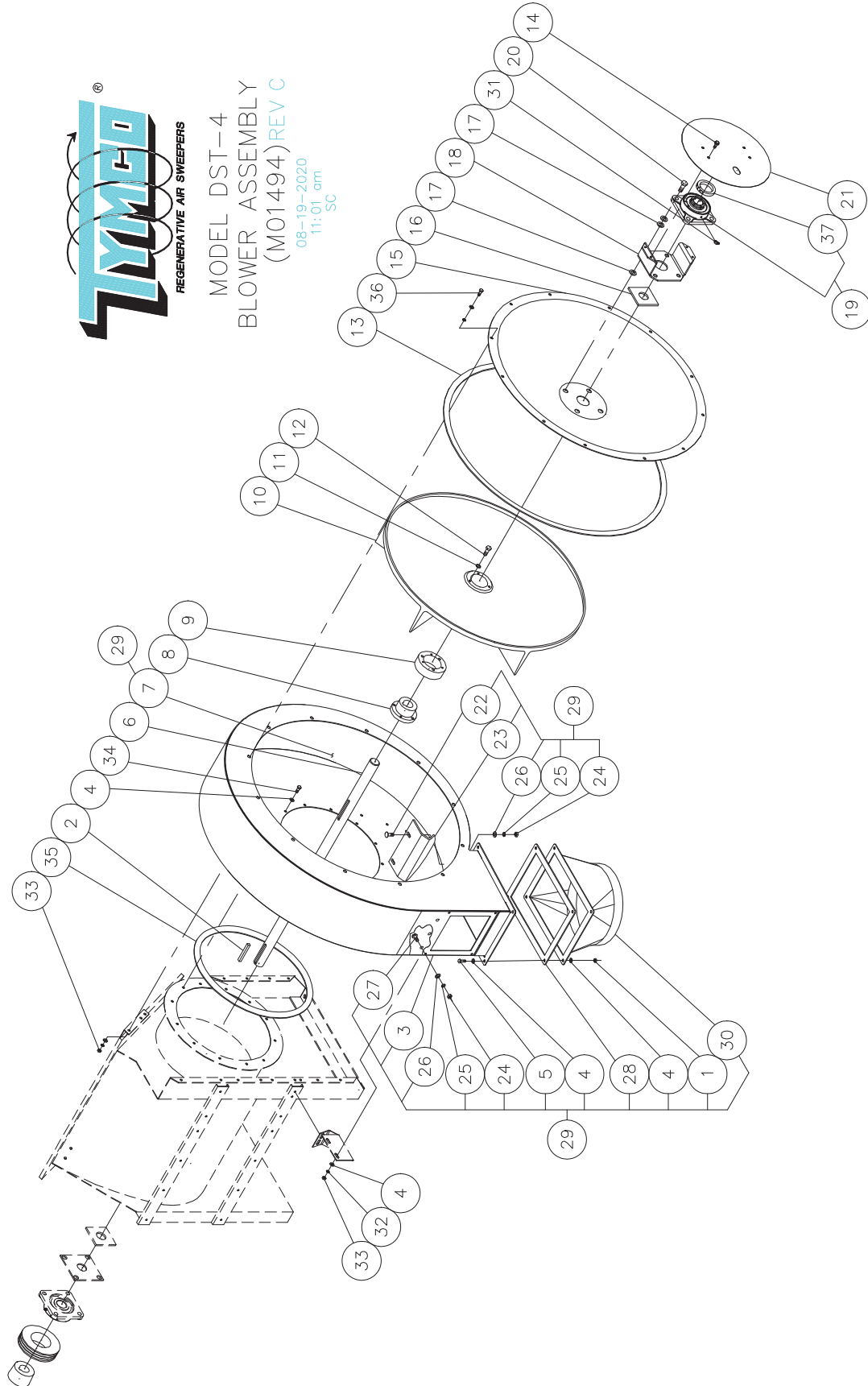
FUNCTION

The blower is the most important part of the TYMCO AIR SWEEPER[®] as it furnishes both pressure for the blast orifice as well as suction for the suction nozzle. The blower is designed for maximum performance with low noise and is constructed of an aluminum alloy for light weight. Blower life can be effectively increased by keeping the dust separator clean and functioning properly. More importantly, operating the blower at as slow an RPM as possible will reduce abrasive wear not only to the blower but throughout the machine.

TROUBLESHOOTER'S GUIDE

 **WARNING:** Before servicing, stop auxiliary engine and remove ignition key or disconnect negative battery cable.

PROBLEM	CAUSE	SOLUTION
Unusual noise/vibration	Blower wearing, out of balance, worn bearings	Remove & replace
Blower bearings overheating	Worn bearings	Replace
	Bearings need grease	Lubricate
Reduced blower performance	Loose drive belt	Tighten
	Drive belt and sheaves worn or damaged	Replace.
	Blocked blast orifice, suction hose, screen	Clean
	Cut or torn pressure hose	Replace



MODEL DST-4
BLOWER ASSEMBLY
(M01494) REV C

08-19-2020
11:01 am
SC

**TYMCO MODEL DST-4
BLOWER ASSEMBLY PARTS LIST
DWG-M01494**

ITEM	QTY	PART NO	DESCRIPTION
	1	505688	Blower Assembly - DST-4
1	4	10229	Nut - 5/16-18 Hex Top Lock
2	2	5010074	Key - Blower Shaft
3	1	505687	DST-4 Blower Housing
4	26	10305	5/16" Flat Washer
5	4	10117	Bolt - 5/16-18 x 1 Hex Head
6	1	5016934	Blower Shaft
7	1	5015939	DST-4 Blower Liner
8	1	11137	Q.D. Bushing
9	1	8010111	Hub - Blower Wheel
10	1	5011626	Blower Wheel - Coated
11	3	10310	7/16" Lock Washer
12	3	20183	Bolt - 7/16-14 NC x 1-3/4 HSHCS Allen Head
13	1	5010937	Seal - Blower Housing Cover
14	4	10104	Bolt - 5/16-18 x 3/4 Taptite
15	1	504490	Blower Cover Assembly
16	1	5011381	Felt Seal - Flange Bearing
17	12	10311	1/2" Flat Washer
18	1	5016931	Bearing Plate
19	1	13566	Flange Bearing
20	4	10141	Bolt - 1/2-13 x 2 Hex Head
21	1	5016933	Guard - Bearing
22	2	40179	Bolt - 3/8-16 x 1 1/2 Carriage Head
23	1	5015563	Lip - Blower
24	8	10209	Nut - 3/8-16 Hex Head
25	8	10308	3/8" Lock Washer
26	8	10307	3/8" Flat Washer
27	6	20187	Bolt - 3/8 x 1-1/4 Elevator
28	1	5018397	Transition Seal
29	1	505689	DST-4 Blower Housing Assembly w/Transition
30	1	504241	Transition Weldment
31	1	12376	Zerk - 1/4-28 x 45°
32	36	10306	5/16" Lock Washer
33	24	10205	Nut - 5/16-18 Hex
34	24	20124	Bolt - 5/16-18 x 1 Button Socket
35	1	12334	Tacky Tape (48")
36	12	10117	Bolt 5/16-18 x 1 HHCS
37 (Comes w/13566)		13735	Lock Collar - Bearing
Not Shown	2	12771	Caulk - Essex U-418

STAINLESS OPTION

3	1	S505687	DST-4 Blower Housing SS
22	2	20148	Bolt - 3/8-16 x 1 1/2 CHCS SS
24	8	10249	Nut - 3/8-16 Hex SS
25	8	10333	3/8 - Lock Washer SS
26	8	10337	3/8 - Flat Washer SS
27	6	40113	Bolt - 3/8-16 x 1 1/4 Elevator SS
29	1	S505689	SS Blower Housing Assy. w/Transition

F



WARNING: Before servicing, stop auxiliary engine and remove ignition key or disconnect negative battery cable.

Read complete instructions before disassembly and assembly.

TO DISASSEMBLE:

1. Refer to Blower Assembly Drawing M01494 on Page F-2.
2. Start Auxiliary engine and raise hopper for maintenance access. **INSTALL HOPPER SAFETY STRUT PIN IN LOWER SAFETY STRUT PRIOR TO WORKING IN THIS AREA.**
3. Loosen the four bolts at the base of the engine mount assembly and move the auxiliary engine forward to provide slack in the blower belt. Movement of the engine is done by use of the adjusting screw located on rear mounting rail.
4. Remove the protective cover guard (21) over the outer bearing allowing access to bearing.
5. Loosen set screws from bearing (19) using an Allen wrench.
6. Remove the 5/16-18 bolts (37) from blower housing cover (15) and slide cover/bearing assembly off blower shaft. Blower assembly will drop and come to rest inside the blower housing.

NOTE: It may be necessary to use a gear puller or similar tool to slide bearing off shaft.

7. Remove the three Allen bolts (12) from the blower hub (9). At this point, the blower is free from the Q.D. bushing (8). Using fine emory cloth, lightly sand the shaft from the blower to the outer end and lubricate it.
8. Using a 2" x 4" (50.8 mm x 101.6 mm) piece of wood or similar implement from inside the dust separator, bump the blower toward outer end of the shaft. Shaft must be held in such a position as to align blower so it can be removed from the blower housing.

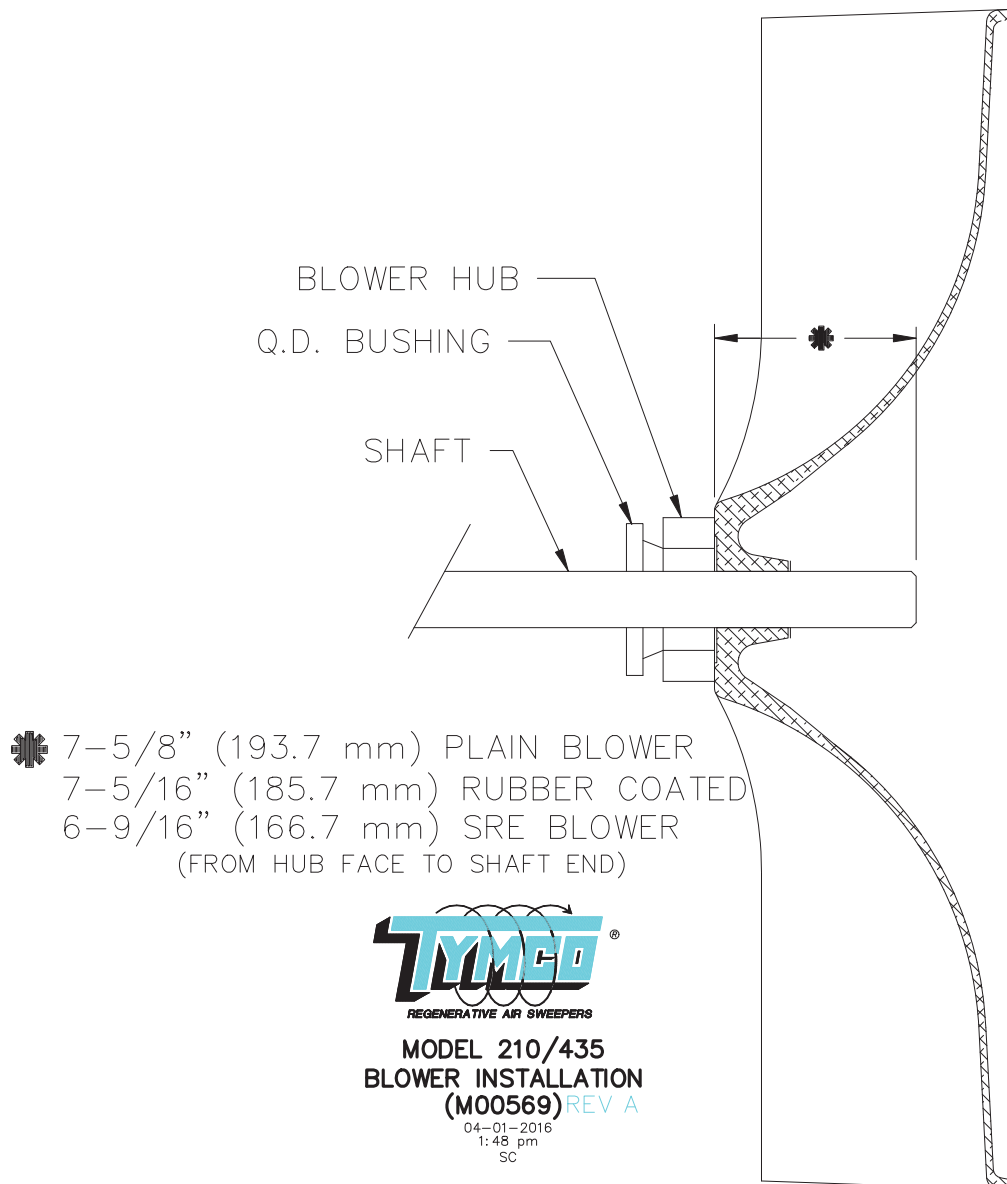
NOTE: If for whatever reason the blower will not slide off the shaft using the above method, it may be necessary to remove the blower sheave/bushing assembly (dotted). Loosen inside bearing set screws and remove blower and shaft as an assembly and then remove blower from hub. In either case, it is **NOT** necessary to disturb the Q.D. bushing's (8) position on the shaft unless a plain blower is being replaced with a rubber coated blower or vice versa. If that is the case, position Q.D. bushing/blower hub to the applicable dimension shown on drawing M00569 - Page E-5.

TO ASSEMBLE:

1. If Not already installed, slide the Q. D. bushing (8) onto the blower shaft (6) along with the blower hub (9). Attach the Q. D. bushing (8) to the blower hub (9) and leave loose. Mark the blower shaft (6) at the appropriate distance from the end of the shaft (6) as shown in illustration (M00569). Align the blower hub (9) with the mark on the blower shaft (6) and tighten the Q. D. bushing (8) by torquing the bolts to 15 ft. - lbs.

F

2. Place new blower wheel (10) with vanes toward housing over shaft (6) and slide it into the housing against the hub and align the three mounting bolt holes. Install the three bolts (12) with the lock washers (11). Tighten the three bolts holding the blower onto the hub by torquing the bolts to 50 ft. - lbs.
3. If cover seal (13) is damaged, replace. The seal material comes in 3/16" X 1" (4.8 mm x 25.4 mm) strips with a peel and stick back. Peel paper and stick seal on cover. Bolt placement holes can be knocked out by using a ball-peen hammer.
4. Place cover (15) into position, align bearing (19) which is already mounted to cover (15), with shaft (6) and slip into place. Match holes in cover (15) with holes in blower housing (3) so that bearing zerk fitting is oriented at 9 o'clock. Bolt bearing cover to blower housing cover matching access hole with zerk.
5. Screw twelve bolts (14) in cover (15). Tighten set screws onto bearing (19) to shaft (6).
6. Replace protective bearing cover guard (21) with bolts (14). Re-adjust auxiliary engine mount and set blower belt tension.



POWER UNIT

TABLE OF CONTENTS KUBOTA V2403-CR-TE4B TURBO TIER 4F POWER UNIT ASSEMBLY

SECTION G	PAGE
Function	G-1
Engine Protection	G-1
Diesel Fuel Requirements	G-2
Engine Coolant Requirements	G-2
Engine Oil Requirements	G-2
Exhaust System Regeneration	G-2
Troubleshooter's Guide	G-2
Service & Maintenance	G-2
Sweeper Blower Sheave Ratio	G-2
Power Unit Assembly Drawing	G-4
Power Unit Assembly Parts List	G-5
ECU Electrical Center Assembly	G-8
DST-4 Compressor Addendum Assembly Drawing	G-9
DST-4 Compressor Addendum Assembly Parts List	G-10
DST-4 Compressor Assembly Drawing and Parts List	G-12
DST-4 Compressor TYMCO Modification Drawing and Parts List	G-13
Hays Bearing Supported Stub Shaft Assembly Maintenance	G-14
Air Cleaner Maintenance	G-14

FUNCTION

The Power Unit drives the blower and hydraulic pump and is, therefore, the source of energy for the sweeping operation. All standard controls and gauges for the Power Unit are located inside the truck cab for operator convenience. The V2403-CR-TE4B Final Tier 4 engine is an electronic engine and requires an engine control module (ECU). The ECU communicates with the BlueLogic control system over the CAN datalink. See BlueLogic Control System section of this manual for details. The ECU and BlueLogic control system monitor and control the engine throttle. The engine will start and run at 1100 RPM. The engine speed is variable, in 25 RPM increments, up to the maximum high idle speed of 2100 RPM. The maximum high idle speed can be adjusted up to 2200 RPM for heavy duty applications or down to 1600 RPM for economy sweeping. See the Control System Section for details. Note that operation of the sweeper in excess of the factory maximum speed setting (2100 RPM) will affect optimum component life, noise, and fuel economy. Refer to the applicable Power Unit Operator's Manual for detailed information.

Note: All Power Unit parts must be purchased through the engine manufacturer dealer network.

ENGINE PROTECTION

The ECM monitors and protects the engine and communicates all engine data through the CAN datalink to the HMI display module on the control panel. The HMI display module displays the engine speed, engine load at current engine speed, coolant temperature, oil pressure, engine hours, system voltage, etc. as well as Kubota fault codes. If the ECM detects an engine fault it will:

1. Send an engine fault code message to the HMI display
2. Automatically derate and/or shutdown the engine after a specified time to protect the engine from damage.

G

The display will notify the operator of the fault via a visual message and an audible alarm. The operator can check the display for any active fault codes, but will need to take the sweeper to an authorized Kubota industrial engine service provider for diagnosing any engine fault codes that become active or that have previously occurred.

DIESEL FUEL REQUIREMENTS

Diesel fuel must meet certain requirements for lubricity, cetane, sulfur content, and cold filter plugging point to ensure proper operation and prevent damage to the engine, fuel system and exhaust system.

- Cetane number: 43 minimum, 47 preferred
- Fuel lubricity: See Kubota manual
- Sulfur Content: Use only ultra low sulfur diesel fuel (15 ppm max)
- Bio diesel 7% (B7) maximum

ENGINE COOLANT REQUIREMENTS

TYMCO recommends the use of ethylene glycol based extended life coolant/antifreeze that meets ASTM D6210 and contains a nitrite free additive package. It should be a mix of 45% coolant to 55% quality water. A proper coolant mixture has been used upon the initial filling of the system during manufacture. The coolant has a 15,000 hour, 8 year service life. If needed, top off with a proper mixture of:

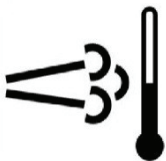
Chevron Delo® XLC Coolant/Antifreeze

ENGINE OIL REQUIREMENTS

Use only API CJ-4 engine oil. Use of Kubota OEM filters is recommended. The engine oil and filter should be changed after the first 50 hours of operation. Thereafter, the recommended engine oil service interval is 250 hours.

EXHAUST SYSTEM REGENERATION

The exhaust system diesel particulate filter (DPF) gets continuously loaded with soot from exhaust gas and will continuously do passive regeneration if the exhaust temperature is above 572°F (300° C). The engine will periodically require an active regeneration to further raise the exhaust temperatures and clean soot from the DPF. The Engine ECU calculates when active regeneration needs to take place. This is determined based fuel consumption, elapsed time, engine operating conditions and the delta pressure sensor signal. This can occur without operator intervention while sweeping. The high exhaust temperature icon will illuminate to indicate cleaning is active.

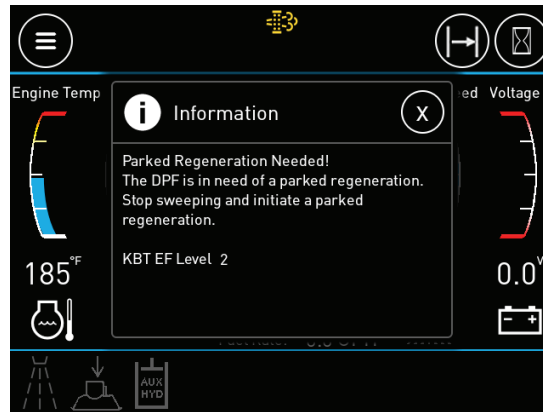


High Exhaust Temperature Icon

If operator initiated regeneration is needed, the Exhaust Filter Indicator will illuminate along with a diagnostic trouble code message. If the operator initiated regeneration is not completed, additional engine fault codes and engine derate will occur. See the Controls Section for information on initiating regeneration.



Exhaust Filter Icon



Parked Regeneration Message

TROUBLESHOOTER'S GUIDE

WARNING: Before servicing, stop auxiliary engine and remove ignition key or disconnect negative battery cable.

PROBLEM	CAUSE	SOLUTION
Blower shaft not turning	Belt not tight	Tighten. See Blower Assembly-Disassembly and Assembly Section.
	Defective flex coupling or PTO Shaft	Remove and Replace
	Loose sheave	Tighten. Replace key as necessary.
Poor engine performance	Engine problems	Refer to engine manual supplied with sweeper for tune-up, etc.

SERVICE & MAINTENANCE

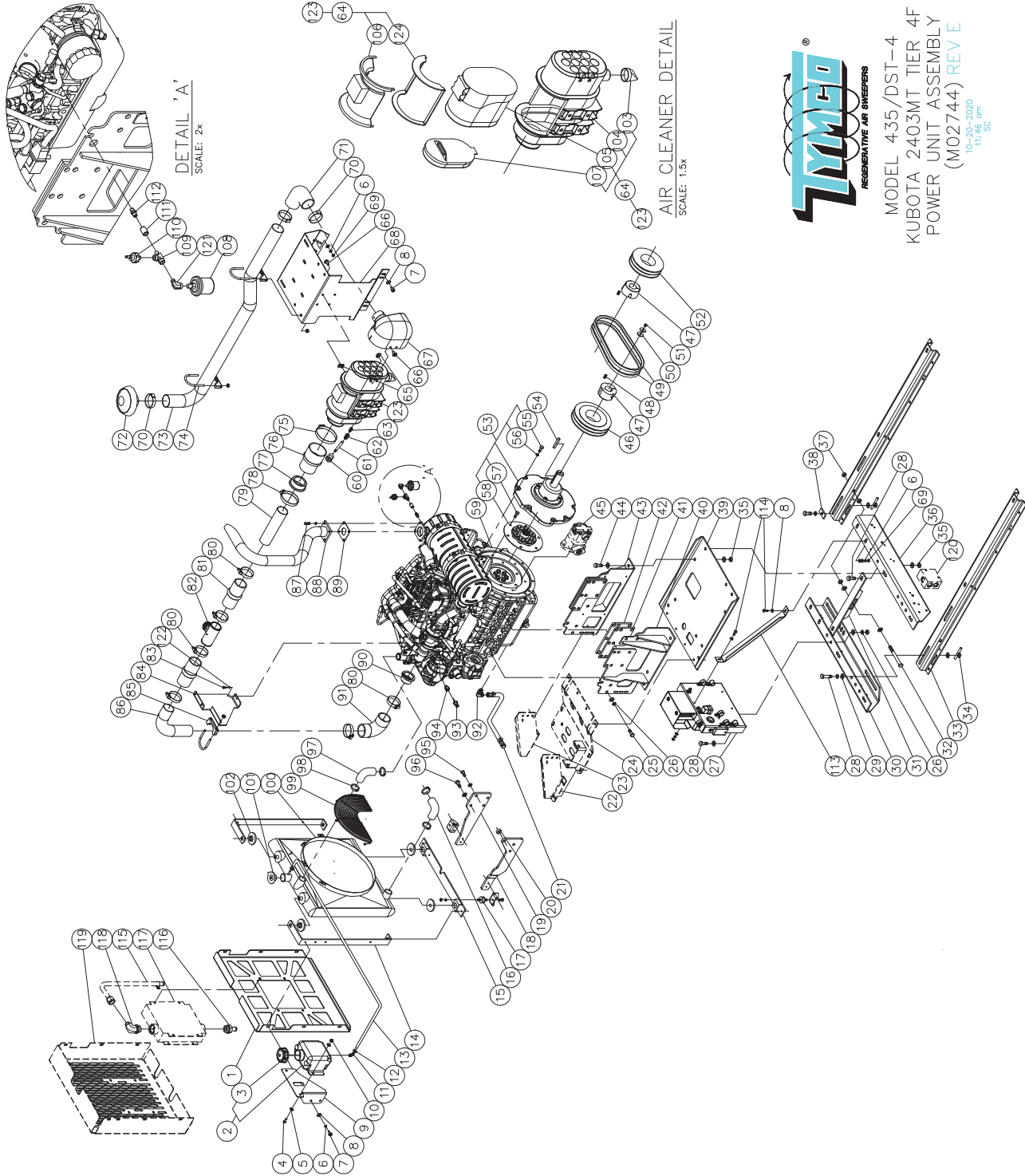
In order to simplify the service and maintenance on the engine which powers the sweeper unit, refer to the Engine Operator's Manual for the routine service and maintenance procedures and schedules. (By days, hours, miles, etc.)

Power Unit drive belts shall be checked on a regular basis for correct tension. Belts should be inspected at a minimum of every 100 hours of operation. If excessive "belt slap" or vibration is noticed before the minimum check interval, then retention the belt immediately. Failure to do so can result in premature failure of belt, bearings, and coupling assembly. Incorrect belt tension can also promote metal fatigue which can cause brackets, mounts, and other components to crack.

SWEEPER BLOWER SHEAVE RATIO

The blower is belt driven through a set of sheaves with a 1.194:1 speed up ratio.

Engine Low/High RPM	Blower Low/High RPM
1100/2100	1313/2507



MODEL 435/DST-4
KUBOTA 2403MT TIER 4F
POWER UNIT ASSEMBLY
(M02744) REVE
10-10-2020
11:46 am
SC

**TYMCO MODEL 435/DST-4
KUBOTA V2403-CR-TE4B FT4 POWER UNIT ASSEMBLY PARTS LIST
DWG-M02744**

ITEM	QTY.	PART NO.	DESCRIPTION
	1	508471	Kubota V2403-CR-TE4B Power Unit Assy.
1	1	5021929	Cooler Mount
2	1	507331	Coolant Overflow Tank
3	1	22288	Vented Cap - Overflow Tank
4	2	10110	Bolt - 1/4-20 x 3/4 HWH Taptite
5	4	10303	1/4 - Flat Washer
6	14	10306	5/16" Lock Washer
7	4	10104	Bolt - 5/16-18 x 3/4 HHCS Taptite
8	24	10305	5/16" Flat Washer
9	1	5021415	Bracket - Coolant Overflow Tank
10	6	10274	Nut - 1/4-20 Kept
11	1	40627	Fitting - 1/4 MPT - 1/7 HB 90° Elbow
12	2	13485	Hose Clamp - 5/16-7/16
13	1	5020339	Hose - 1/4 I.D. x 16"
14	1	505932	Mount Arms (Modified) - Radiator
15	1	(Comes w/Engine)	Mount Pad - Radiator
16	1	(Comes w/Engine)	Radiator Hose - Lower
17	2	(Comes w/Engine)	Isolator - Radiator Mount
18	1	(Comes w/Engine)	Mount Arm (LH) - Radiator
19	1	(Comes w/Engine)	Mount Arm (RH) - Radiator
20	1	(Comes w/Engine)	Spacer - Radiator Mount
21	1	505809	Hose Assembly - Oil Drain
22	1	5018452	Side Mount (LH) - Cat Pump Option Only
23	1	5018451	Side Mount (RH) - Cat Pump Option Only
24	1	505804	Base Mount Plate Weldment (w/Cat Pump)
25	12	40174	Bolt - 12mm-1.25 x 50mm HHCS
26	21	10312	1/2" Lock Washer
27	1	508470	ECU Electrical Center
28	12	10167	Bolt - 1/2-13 x 1-1/4 HHCS
29	41	10311	1/2" Flat Washer
30	1	5012941	Engine Mount Rail (RH)
31	1	5012942	Belt Tension Bar Assembly
32	1	500951	Adjusting Screw
33	2	5010062	Power Unit Rail
34	4	500945	Nut - Butterfly (Engine Mount)
35	7	10231	Nut - 1/2-13 Top Lock
36	1	5012940	Engine Mount Rail (LH)
37	5	10201	Nut - 1/2-13 Hex
38	4	5012945	Guide - Engine Mount
39	1	5015306	Mounting Plate - Engine
40	1	505928	Motor Mount Weldment - RH
41	1	5018619	5/16" Spacer - Motor Mount
42	1	5018620	3/8" Spacer - Motor Mount
43	1	505927	Motor Mount Weldment - LH
44	5	10140	Bolt - 1/2-13 x 1-3/4 HHCS
45	-	(Shown for Clarity)	V10 Hydraulic Pump - Direct Drive
46	1	11166	Drive Sheave - 8.0 5V 2G
47	2	11136	Taper Lock Bushing - 2517 x 1-1/2 Bore
48	-	(Comes w/Taper Lock)	Set Screw
49	2	13245	Power Band - 1G 5V 470
50	2	10397	Fender Washer 3/8 ID x 1-1/4 OD

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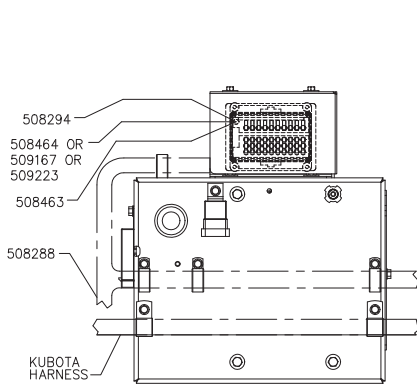
ITEM	QTY.	PART NO.	DESCRIPTION
51	1	13486	1/8 MPT Hex Head Plug
52	1	5021868	Blower Sheave - 6.7 5V 2G 2517 TL
53	1	22349	Bearing Supported Stub Shaft Assembly
54	1	5019975	Key - PTO Sheave
55	8	30173	Bolt - 10 mm 1.5 x 30 mm HHCS Gr. 8.8
56	8	10370	10 mm Lock Washer
57	6	40109	Bolt - 10mm-1.25 x 20 mm HHCS
58	1	22374	Coupling Assembly
59	1	508472	Kubota Engine - V-2403 FT4
60	1	5011352	Indicator - Air Restriction (20" Water)
61	1	30621	Fitting - 1/8 NPT x 4 Nipple Black
62	1	30819	Fitting - 1/8 FPT 90° Union
63	1	30869	Fitting - 1/8 NPT Nipple w/Filter
64	1	-	Air Cleaner Assembly
65	8	10283	U-Nut - 5/16-18
66	8	40167	Body Bolt - 5/16-18 x 1 Type CA
67	1	509021	Inlet Adapter Assembly
68	1	5021883	Mount Bracket - Intake
69	4	10205	Nut - 5/16-18 Hex
70	3	11321	Hose Clamp - 2 1/4 - 3 /8
71	1	5013155	Rubber Elbow - 2 1/2 x 90°
72	1	5011339	Cap - Air Inlet
73	1	5021884	Stack - Intake
74	2	11337	Muffler Clamp - 2 1/2 Heavy Duty
75	1	11324	Hose Clamp - 3 1/2 - 4 3/8
76	1	30503	Hump Hose - 3.50 x 3.00 x 5.25
77	1	13102	Rubber Reducer - 3.0 O.D. to 2.25 I.D.
78	1	11317	Hose Clamp - 2.75 to 3.63
79	1	5021112	Intake Tube
80	6	11323	Hose Clamp - 1.75 x 2.625
81	2	13103	Hump Hose - 2.25 I.D. Silicone
82	1	(Comes w/Engine)	MAF Sensor
83	2	40199	Bolt - M6 - 1.0 x 16mm HHCS
84	1	5021886	Support Bracket - Intake
85	1	11309	Muffler Clamp - 2 1/4"
86	1	5021113	Intake Elbow
87	4	30116	Bolt - 8 mm - 1.25 x 25 mm HHCS
88	1	508336	Exhaust Pipe Weldment
89	1	12398	Gasket - Muffler 3" Square
90	1	13101	Reducer - 2 1/4 O.D. to 2.00 I.D.
91	1	10537	90 Rubber Elbow - 2 1/4" I.D.
92	1	40742	Fitting - m16 x 1.5 x 1/2 JIC 90°
93	1	13647	Coolant Level Sensor w/Built In Module
94	1	20814	Fitting - 3/8 MPT x 3/8 FPT
95	1	30197	Bolt - 10 mm-1.25 x 40 mm HHCS
96	1	40136	Bolt - 12 mm-1.25 x 40 mm HHCS
97	1	(Comes w/Engine)	Radiator Hose - Upper
98	4	(Comes w/Engine)	Hose Clamp - Radiator
99	1	(Comes w/Engine)	Inside Fan Guard
100	1	(Comes w/Engine)	Radiator
101	1	(Comes w/Engine)	Radiator Cap
102	4	(Comes w/Engine)	Radiator Grommet
103	1	13109	Vactuator Valve
104	1	(Not Serviceable)	Body - Air Cleaner
105	1	22530	Primary Filter Element

ITEM	QTY.	PART NO.	DESCRIPTION
106	1	13125	Air Cleaner Cover
107	1	22531	Safety Element
108	1	22419	Oil Pressure Unit
109	1	10756	Fitting - 1/8 Male Run Tee
110	1	(Comes w/Engine)	Oil Pressure Switch - 7 PSI
111	1	30743	Fitting - 1/8 Coupling - Black
112	1	10707	Fitting - 1/8 MPT Nipple
113	1	5021440	ECU Brace
114	2	10117	Bolt - 5/16 x 1.00 HHCS
115	(Shown for Clarity)	509030	Cooler Hydraulic Tube
116	(Shown for Clarity)	13442	Fitting - 1 ORB x 3/4 HB Str.
117	(Shown for Clarity)	13441	Oil Cooler w/o Fan
118	(Shown for Clarity)	40749	Fitting - 1" ORBX 3/4 JIC 90
119	1	5021928	Shroud Cooler Mount
120	1	505856	Return Manifold
121	1	10733	Fitting - 1/8 FNPT - 1/8 NPT 90°
122	2	10321	6mm Lock Washer
123	1	509366	Air Cleaner Assembly w/Gasket
124	1	5022201	Gasket - Air Cleaner Assembly

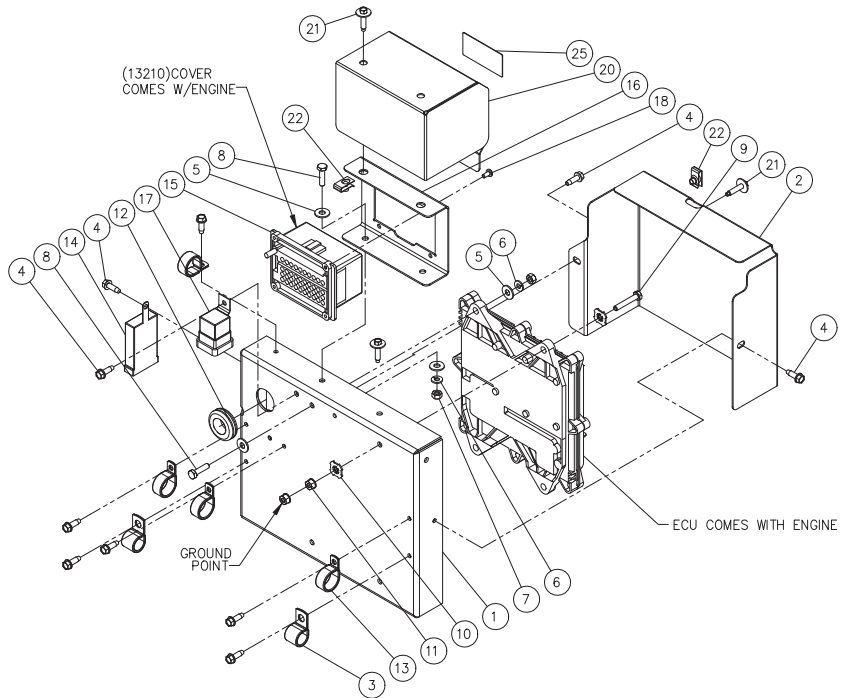
NOT SHOWN

1	505910	Ground Cable - 150" WB Isuzu (Model 435)
1	508979	Ground Cable - COMDEX 435 or DST-4
1	507755	Ground Cable - Freightliner M2
1	505919	Pos. Bat. Cable - 150" WB Isuzu (Model 435)
1	508980	Pos. Bat. Cable - COMDEX 435 or DST-4
1	507756	Pos. Bat. Cable - Freightliner M2
1	508473	Wiring Schematic - Engine
1	800266	Ground Harness - Auxiliary Engine
1	508587	Wire Harness - Intermediate Engine
5	13501	Hose Clamp - SAE Size 3

G

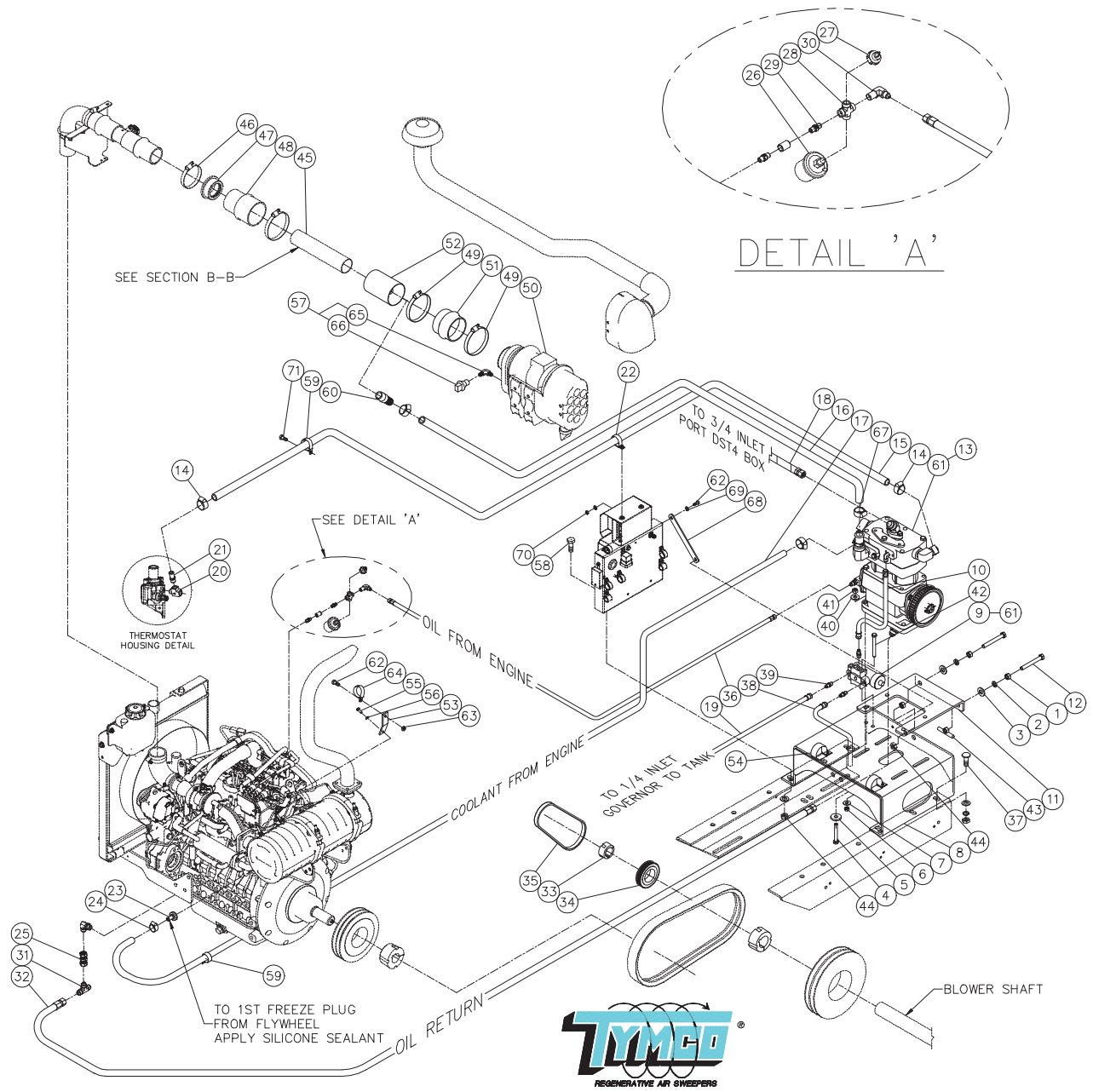


MODEL 210/435/DST-4
KUBOTA 2403-CR TIER 4F
ECU ELECTRICAL CENTER
(M02890) REV C
07-20-2020
9:39 am
SC



TYMCO MODEL 210/435/DST-4 KUBOTA V2403-CR-TE4B FT4 ECU ELECTRICAL CENTER ASSEMBLY PARTS LIST DWG-M02890

ITEM	QTY.	PART NO.	DESCRIPTION
	1	508470	Kubota V2403-CR-TE4B ECU Assembly
1	1	5021434	ECU Mount Plate
2	1	5021430	ECU Cover
3	2	11361	Clamp - Heavy Duty Dipped - 3/4
4	10	30104	Self Tap 1/4-20 UNC x 3/4
5	10	10303	Flat Washer - 1/4
6	5	10304	Lock Washer - 1/4
7	5	10203	Nut - 1/4 UNC
8	5	10111	Bolt - 1/4-20 x 1.00 HHCS
9	1	10112	Bolt - 1/4-20 x 1.50 HHCS
10	2	10357	1/4 - Toothed Dish Washer
11	2	10274	Nut - 1/4-20 UNC Kept
12	1	30512	Grommet - 7/8 x 1-3/8
13	4	11338	Clamp - Dipped 1.00
14	1	508289	Harness - Low Coolant Sensor
15	1	508288	Harness - Engine Fuse Panel
16	1	5021437	Fuse Panel Bracket
17	1	508463	Harness - Prehead Relay
18	4	30151	Screw - #10-32 x 3/8
19	1	508294	Harness - Alternator Power
20	1	5022211	Fuse Box Cover
21	3	50119	Body Boty - M6-1.0 x 28
22	3	20250	U-Nut - M6 x 1.0
Not Shown	1	508464	Harness - Fuse Panel Supply (Isuzu 150" WB)
-	-	509167	Harness - Fuse Panel Supply (Ford)
-	-	509223	Harness - Fuse Panel Supply (M2, Isuzu 132.5" WB)
Not Shown	1	13540	Fuse Panel Cover Lock
25	1	5022216	Decal - Fuse Cover



MODEL DST-4
ADDENDUM-COMPRESSOR PARTS
(M02835) REV C

7/6/20
2:31 PM
SC

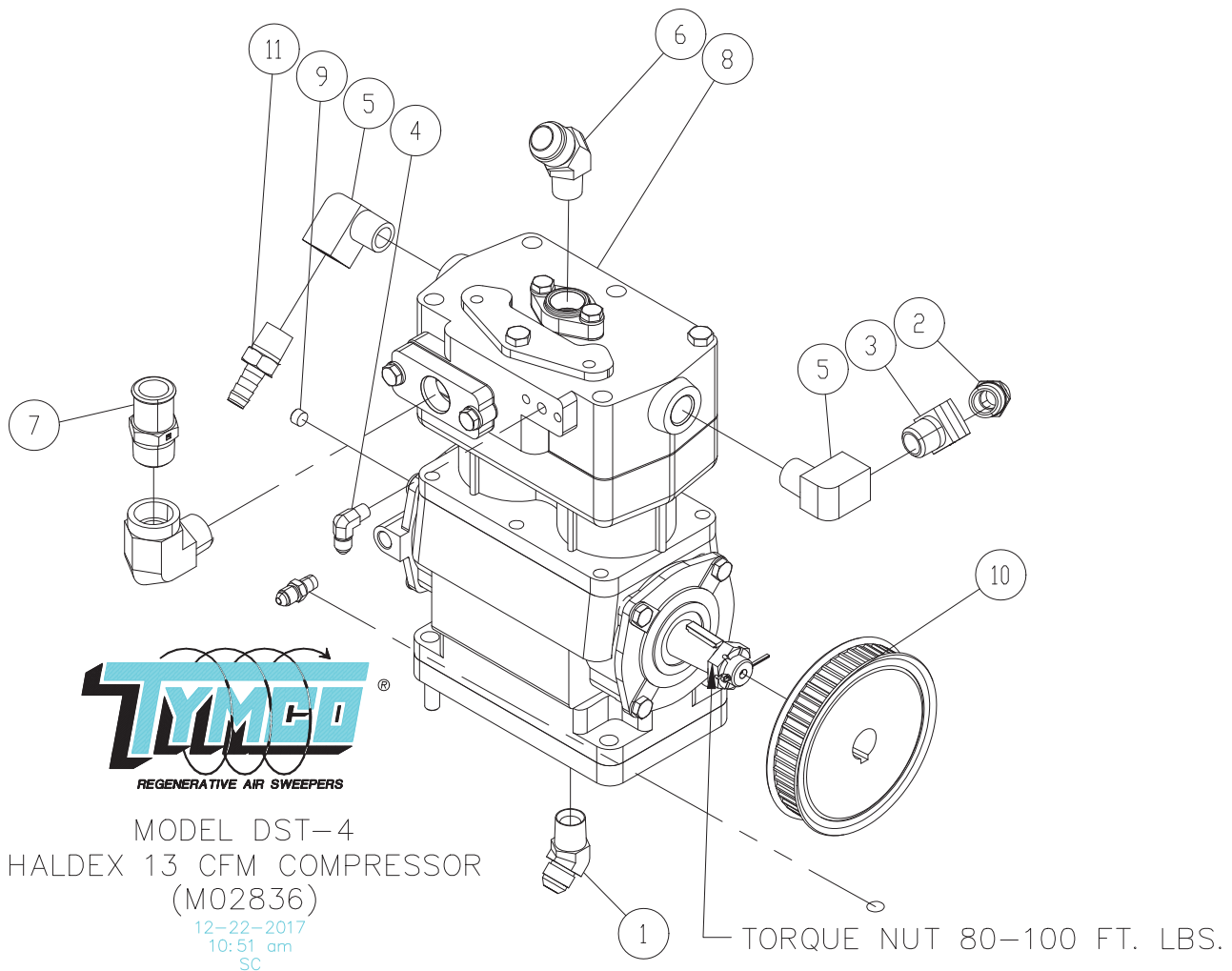


**TYMCO MODEL DST-4
COMPRESSOR PARTS ADDENDUM PARTS LIST
DWG-M02835**

ITEM	QTY.	PART NO.	DESCRIPTION
	1	508959	DST-4 Haldex Compressor Parts (Addendum)
1	5	10201	Nut - 1/2 NC
2	6	10312	1/2" Lock Washer
3	5	10311	1/2" Flat Washer
4	4	10133	Bolt - 3/8 UNC x 2-1/2
5	4	5013896	0.438 x 1.25 Washer
6	2	10229	Lock Nut - 5/16 UNC
7	2	10305	Flat Washer - 5/16
8	1	508462	Base Weldment - Compressor
9	1	12630	Governor - DST-4 Compressor
10	1	502183	Hose - Compr. Unloader Port to Remote Governor
11	1	5021421	Belt Tensioner - Compressor
12	2	501761	Bolt - 1/2-13 x 4" HHCS Tap
13	1	508960	DST-4 Haldex Compressor Assembly
14	4	11318	1-1/4 Worm Gear Clamp
15	1	5016723	Hose - Coolant Return
16	1	5013963	Hose - 1" X 28" 10987
17	1	508966	Hose - 1/2 x 47" Silicone
18	1	503608	Pressure Hose w/Heat Wrap
19	1	509020	Hose Assembly - 1/4 x 117"
20	1	10812	Fitting - 3/8 NPT Street Tee
21	1	30802	Fitting - 3/8 MPT x 5/8 HB Str.
22	1	11338	Dipped Clamp - 1"
23	1	13342	Coolant Port
24	2	11322	Hose Clamp - 5/16 to 7/8
25	1	13417	Fitting - 1/2 JIC Union Swv.
26	1	22419	Oil Pressure Sending Unit
27	1	12726	Oil Pressure Switch
28	1	40783	1/8 NPT Cross
29	1	10707	1/8 NPT Hex Nipple
30	1	10721	Fitting - 1/4 JIC - 1/8 MPT 90°
31	1	13416	Fitting - 1/2 Male JIC Union Tee
32	1	508963	Hose Assembly - 1/2 x 40"
33	1	11152	Taper Lock Bushing
34	1	13341	Drive Sprocket 60T
35	1	13340	Belt - Synchronous 8 x 720 x 20
36	1	500167	Hose Assembly - 1/4" x 11"
37	2	10146	Bolt - 1/2 NC x 1-1/4 Carriage
38	1	504442	Hose - Governor Exhaust
39	3	10855	Adapter - 1/8 NPT to 1/4 JIC
40	4	10307	Flat Washer - 3/8
41	4	10225	Lock Nut - 3/8 UNC
42	2	10122	Bolt - 5/16 NC x 3
43	1	500945	Butterfly Nut
44	3	10231	Nut - 1/2 UNC Toplock
45	1	5021112	Intake Pipe - 2 1/4
46	1	11317	Hose Clamp - 2.75 to 3.63
47	1	13102	Rubber Reducer - 3 x 2 1/4
48	1	30503	Hump Hose - 3 1/2 x 3
49	2	11324	Hose Clamp - 3.50 to 4.38
50	1	509366	Air Cleaner Assembly

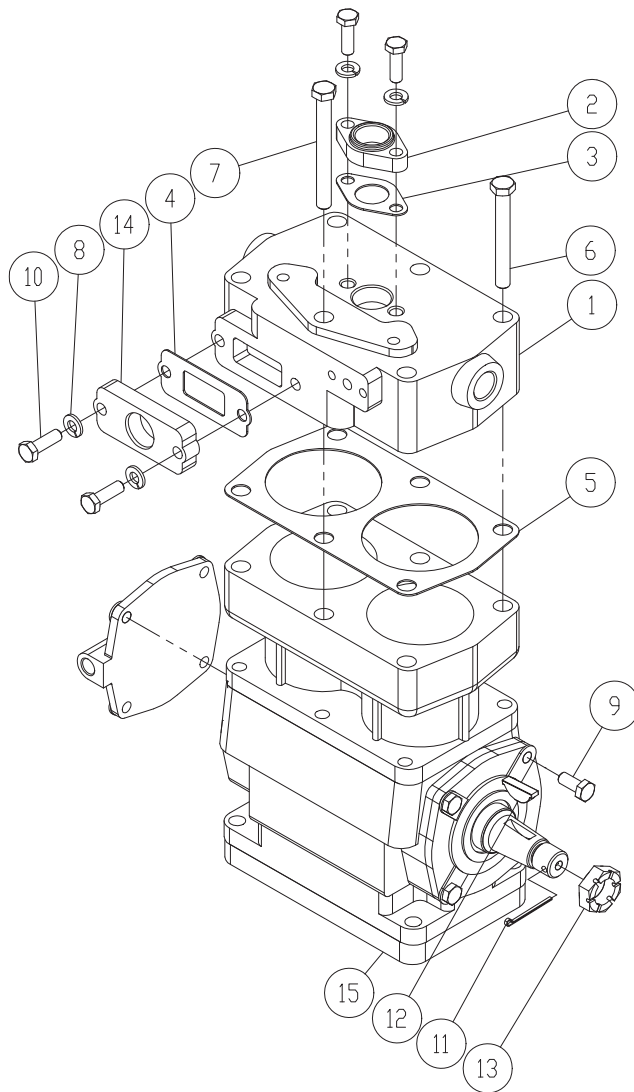
ITEM	QTY.	PART NO.	DESCRIPTION
51	1	13413	Hump Hose - 3 1/2 I.D.
52	1	508958	Intake Pipe
53	1	5021879	Intake Hose Mount
54	2	11391	Clamp - Heavy Duty - Dipped 1-1/2"
55	1	40199	Bolt - 6mm x 16mm HHCS
56	1	10321	Lock Washer 14mm
57	1	508964	Air Restriction Gauge Option
58	2	10139	Bolt - 1/2 x 1 1/2 HHCS
59	1	11362	Dipped Clamp HD 1-1/8
60	1	30697	1" King Nipple
61	1	507266	Compressor - DST-4 Configured
62	5	10110	Bolt - 1/4 x 3/4 HHCS
63	3	10274	Nut - 1/4 KEP Lock
64	1	11332	Dip Clamp- 1-1/2
65	1	10735	Fitting - 1/8 NPTF 90°
66	1	21858	Vacuum Sensor
67	2	11335	Hose Clamp - 7/8 to 1-3/4
68	1	5022077	ECU Support Strap
69	4	10303	Flat Washer - 1/4
70	2	10246	Lock Nut - 1/4
71	1	20130	Bolt - M8 - 1.25 x 16mm HHCS

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**TYMCO MODEL DST-4
HALDEX 13 CFM COMPRESSOR ASSEMBLY
DWG-M02836**

ITEM	QTY.	PART NO.	DESCRIPTION
	1	508960	Haldex 13 CFM Compressor Assembly
1	1	30758	Fitting - 1/2 NPT x 1/2 JIC 45°
2	1	30828	Fitting - 5/8 Hose Bead x 1/2 MPT Str.
3	1	30806	Fitting - 1/2 MPT 45° Street Elbow
4	1	10807	Fitting - 1/4 JIC - 1/8 MPT 90°
5	2	10848	Fitting - 1/2 Street Elbow Brass
6	1	50732	Fitting - 3/4 JIC x 1/2 NPT 45° Elbow
7	1	50717	Fitting 1" HB x 3/4 MPT Str.
8	1	507266	DST-4 Haldex Compressor
9	1	30740	Fitting - 1/8" MPT Flush Hollow Hex Plug
10	1	5019505	8 mm Synchronous Sprocket
11	1	30867	Fitting - 1/2 MPT - 1/2 HB Str.
12	1	10788	Fitting - 3/4 Street Elbow 90°
13	1	10706	Fitting - 1/8 NPT x 1/4 JIC Str.



MODEL DST-4
 COMPRESSOR MODIFICATION
 (M02113)REV A
 10-07-2014
 11:17 am
 SC

**TYMCO MODEL DST-4
 COMPRESSOR MODIFICATION ASSEMBLY
 DWG-M02113**

ITEM	QTY.	PART NO.	DESCRIPTION
	1	507266	Compressor Modification Assembly
1	1	22450	Haldex Head
2	1	22452	Exhaust Adapter - Haldex
3	1	22453	Exhaust Gasket
4	1	12641	Intake Gasket - DST Compressor
5	1	22451	Head Gasket - Haldex 13 CFM Compressor
6	5	10172	Bolt - 5/16-16 UNC x 3
7	1	50133	Bolt - 5/16-16 UNC x 3 1/2 Tap
8	2	10306	Lock Washer - 5/16
9	4	20112	Bolt - 5/16-16 UNC x 3/4
10	2	10117	Bolt - 5/16-18 UNC x 1
11	1	10402	1/8 x 1 1/2 Cotter Pin
12	1	12653	Woodruff Key
13	1	20224	5/8 Nut - Hex Castle
14	1	12625	Intake Flange - Haldex
15	1	22435	Haldex Compressor

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HAYS BEARING SUPPORTED STUB SHAFT ASSEMBLY MAINTENANCE

Bearing Housing - Grease with an unleaded extreme pressure lithium grease with NLGI No. 2 Grade. The grease zerk is located on the bearing housing with a low pressure relief valve 180 degrees across. Depending on general maintenance schedule, greasing of the bearing housing should not exceed 2000 hours of run time. Remove any excessive grease or grit from the low pressure relief valve and make sure it is actuating freely. Push the relief valve pin all the way in. Pump several shots of grease into the bearing housing grease zerk using a standard grease gun until the relief valve pin pops out. If the relief valve pin does not pop out after several shots, remove the valve and grease until grease protrudes from the hole and reinstall valve.

Coupling Spline - Greasing of the coupling spline on the end of the stub shaft is no longer recommended.

AIR CLEANER MAINTENANCE

Proper air cleaner servicing will result in maximum engine protection against the ravages of dust. Proper servicing will save you time and money by maximizing filter life and cleaning efficiency. The most common problem with air cleaner service is over servicing. Air filter elements increase in dust cleaning efficiency as the dust builds up in the media and they become seasoned. DO NOT BE FOOLED by air filter appearance; it should look dirty. The sweeper's engine air filter has a very efficient precleaner and high dirt holding capacity for long life. Service the filter based on restriction indicator. The sweeper is equipped with an restriction indicator to warn the operator when the air inlet restriction reaches 25" w.c. The indicator may be on the air cleaner or on the control console depending on options ordered. The air cleaner element should be inspected and serviced when indicated. Failure to service the air cleaner element when indicated may reduce fuel economy, reduced engine performance, and risk damage to the engine.

The air cleaner utilizes a precleaner to remove much of the dust before it reaches to element. This precleaner also spins out incidental water in the air stream. Avoid spraying water directly into the air cleaner inlet.

Follow these steps to properly service the air cleaner element.

1. Shut off engine. Unlatch and remove the housing service cover.
2. Remove primary filter. Pull the filter out of housing. Using the handle, push down on the filter to loosen the seal, which will tilt the filter to approximately a 5° angle.
3. Clean the inside of the air cleaner housing with a damp cloth.
4. Remove safety filter. Using the plastic handle on the face of the safety filter, pull the filter toward the center of the housing and remove. Note: A safety filter only needs to be replaced at every third primary air filter change.
5. Inspect the new filter before installing. Visually check for cuts, tears, or indentations on the sealing surfaces before installation. If any damage is visible, do not install. Using the plastic handle on the safety filter, slide the filter at an angle into the outlet side and push in place until the filter seats firmly and evenly within the housing. Insert the safety filter tab into the positioning slot before pushing the filter in place.
6. Insert the primary filter. Slide the filter down at approximately a 5° angle until it hits the end of the housing. Rotate the filter toward the outlet section to complete the seal.

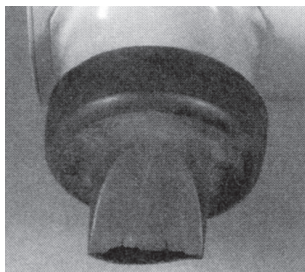
7. Replace the service cover. Place the service cover in position and fasten the latches. Note: If the cover doesn't seat, remove and re-check the filter position. The cover will be difficult to install if the filter isn't installed correctly.
8. Visually inspect your inlet and outlet connections. Inspect the vacuator valve. Replace if any signs of wear or damage are visible.

REPLACEMENT VACUATOR™ VALVES

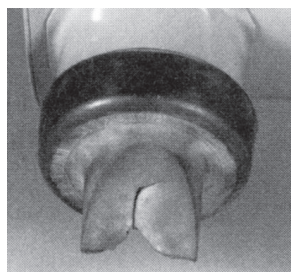
The Vacuator Valve, standard on the majority of Donaldson air cleaners, is an important part of the functionality of the air cleaner. It is an integral part of the pre-cleaning stage on 2-stage air cleaners.

The dust cup, where pre-cleaned dust is collected, is normally under a slight vacuum when the engine is running. The normal engine pulsing of the vacuum causes the Vacuator Valve (located at the lowest point on the dust cup) to open and close. This action automatically expels any collected dust and water. The Vacuator Valve also unloads when the engine is stopped.

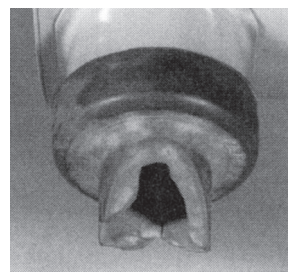
Replace That Damaged Vacuator Valve! If your valve is cracked, torn, remains open or is missing, dust particles that are normally expelled can deposit themselves onto the filter and will shorten air filter service life. ***REPLACE IT!***



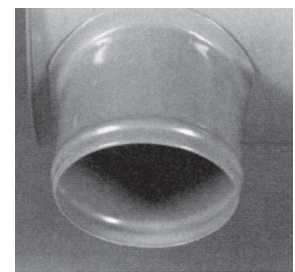
Does it remain open?



Is it cracked?



Is it torn?



Is it missing?

PICK-UP HEAD

TABLE OF CONTENTS

SECTION H	PAGE
Function.	H-1
Troubleshooter's Guide.	H-2
Pick-Up Head Assembly Drawing.	H-4
Pick-Up Head Assembly Parts List	H-5
Service and Maintenance.	H-7
Cross Section Through Pick-Up Head	H-8
Removable Front Curtain Set.	H-9

FUNCTION

The pick-up head is the most important assembly on the sweeper. With proper cleaning, care and adjustment, the unit will perform as it was designed to perform.

Pressurized air from the blower enters the pick-up head through the pressure inlet assembly where turning vanes distribute it equally across the full width of the pick-up head pressure chamber. The air then exits the pressure chamber at a very high velocity through a slot called the Blast Orifice. The approximate 45 degree forward pitch of the blast orifice results in debris being dislodged from the sweeping surface and entrained in the swirling left to right movement of the high speed airstream. After reaching the extreme right side of the pick-up head, the debris-laden air encounters a suction inlet nozzle where it is drawn up the suction tube and into the hopper. The turbulent high velocity air is contained beneath the pick-up head by seal curtains in front and back and skid plates on either side.

NOTE: Any modification or restriction of the blast orifice, pressure inlet nozzle, tube or suction inlet will greatly effect overall performance of the machine.

 **WARNING:** Before servicing, stop auxiliary engine and remove ignition key or disconnect negative battery cable.

The raising and lowering of the pick-up head is accomplished hydraulically with the control valve being actuated by a toggle switch located on the operator's console inside the truck cab. When lowered, the pick-up head lift chains have slack so that its weight is suspended on the four flotation springs. With the sweeper engine at operating RPM, the springs should be adjusted so that the pick-up head can be lifted off the ground slightly with one hand and slide from side to side with ease.

A break-away transition is provided on the suction side of the machine to allow the operator to check for build up of dirt and debris in the suction hose. A check of the suction and pressure hose at various times may reveal wear. As areas of wear become evident, rotate the hose until wear is even on all inside surfaces.

H



CAUTION: For safety, check the pick-up head drag links for loose nuts or damage. Failure to do so could cause serious damage to truck rear tires and axle. Prevent an accident: check it!

TROUBLESHOOTER'S GUIDE

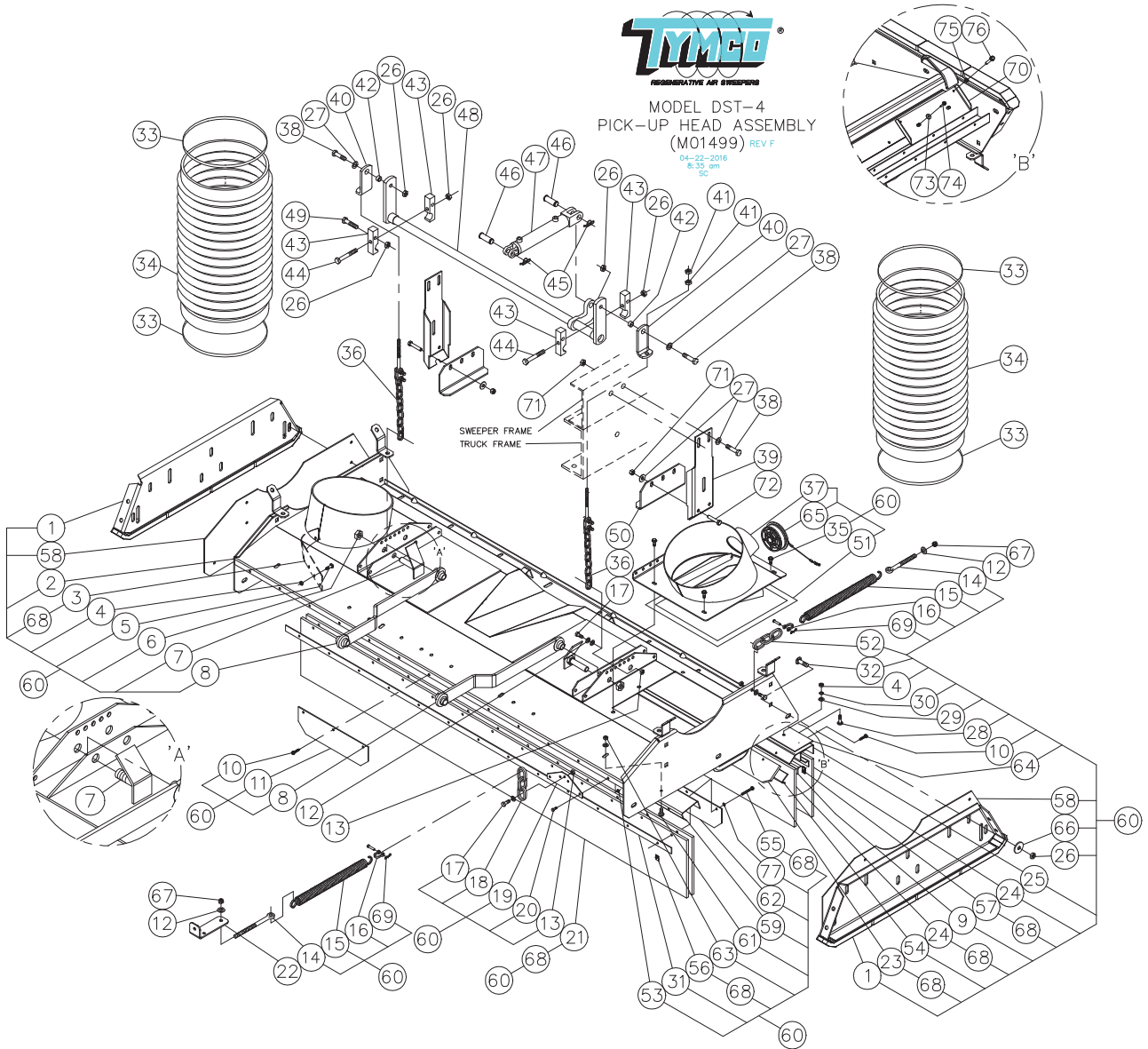
PROBLEM	CAUSE	SOLUTION
Low sweeper efficiency, excessively dusty condition	Faulty seal	Check all seals for leaks. Following seals should be air tight: Cleanout gripper plug (Separator) Dump door Pressure & Suction hose Separator Suction Transition Rubber flap seals (Hopper air entrance)
	Dirty dust separator	Repair or replace any worn or damaged parts Check cleanout gripper plug - be sure it is secure. Check for unusually large build-up of dust. Clean skimmer slot.
	Pick-Up head problem	Worn curtains. Measure blast orifice opening so it is adjusted as noted in service and maintenance instructions.. Check for blockage. Check pressure & suction hose for blockage, build-up or holes. Check skid plate adjustment. Clean skimmer hood inside hopper and check for free movement at hinge points.
	Hopper screen restricted	Clean as required.
	Blower wear	Check for excessive wear. Replace as required.
	Water spray nozzles blocked (If applicable)	Check and clean as required.
	Blast orifice damage	Striking large objects, curbs or deep holes Repair as required. Check daily for condition and proper gap.

NOTES



MODEL DST-4
PICK-UP HEAD ASSEMBLY
(M01499) REV F

04-22-2016
8:35 am
SC



**TYMCO MODEL DST-4
PICK-UP HEAD ASSEMBLY PARTS LIST
DWG-M01499**

ITEM	QTY.	PART NO.	DESCRIPTION
	1	505732	DST-4 Pick-Up Head Assembly
1	2	502569	(LH) & (RH) Duo-Skid Plate Assembly
2	1	505265	Pick-Up Head Weldment
3	1	5013179	Suction Baffle Curtain
4	14	10205	Nut - 5/16-18
5	6	10123	Bolt - 5/16-18 Elevator X 1
6	4	10233	Lock Nut - 3/4-10
7	2	504348	Alignment Bolt
8	2	500161	Drag Link
9	2	5015001	Curtain Clamp
10	29	20165	Screw - 1/4"-14 x 1-1/4"
11	1	5010833	Front Curtain Retainer
12	18	10307	3/8" Flat Washer
13	10	10225	Lock Nut - 3/8-16
14	4	10163	3/8" Eye Bolt
15	4	5016923	Spring
16	4	12154	Clevis
17	6	10128	Bolt - 3/8-16 X 1
18	2	5010226	Spring Extension Links
19	2	5012965	Spring Attachment
20	4	10111	Bolt - 1/4-20 X 1
21	2	5011144	Curtain - Front Heavy
22	1	5020553	Spring Hanger
23	1	5010584	Blast Orifice Curtain
24	2	5010588	Rear Curtain
25	1	505271	Adjustable Blast Assembly
26	20	10231	Lock Nut - 1/2-13
27	10	10311	1/2" Flat Washer
28	8	10125	Bolt - 5/16-18 Carriage Head X 1
29	10	10305	5/16" Flat Washer
30	8	10306	5/16" Lock Washer
31	2	5017818	Flat Curtain Clamp
32	10	10146	Bolt - 1/2-13 Carriage Head X 1-1/4
33	4	11340	Hose Clamp - Heavy Duty
34	2	5017410	Suction & Pressure Hose - Heavy Duty
35	5	10104	Bolt - 5/16-18 x 3/4 Taptite
36	2	502402	Lift Chain Assembly
37	1	505648	DST-4 Pressure Inlet - 4" Cleanout
38	6	10140	Bolt - 1/2-13 X 1-3/4
39	2	5019852	Upstop Leg
40	2	5010163	Swing
41	6	10201	Nut - 1/2-13
42	2	5010836	Bushing
43	2	5010128	Bearing Block
44	2	10142	Bolt - 1/2-13 X 3
45	2	10434	Rue Ring Locking Cotter Pin
46	2	10405	Cylinder Clevis Pin
47	1	503364	Hydraulic Cylinder (See Hyd. Section "J")
48	1	500029	Lift Arm Assembly
49	4	10141	Bolt - 1/2-13 X 2

H

ITEM	QTY.	PART NO.	DESCRIPTION
50	1	5019853	Upstop Foot
51	1	5018386	Seal - Pressure Tube Inlet
52	2	5012824	Spring Extension Links
53	30	10203	Nut - 1/4-20 Hex
54	1	5015295	Blast Orifice Stiffener Clamp
55	13	50120	Bolt - M6-1.00 x 50mm
56	13	20250	U-Nut - 6mm - 1.00 Phos Coat
57	13	10224	#14-14 U-Type Speed Nut
58	1	5018291	Pick-Up Head Skid Seal - RH
-	1	5018292	Pick-Up Head Skid Seal - LH
59	1	5019419	Dual Front Curtain Mount
60	1	506757	DST4 Pick-Up Head Sub Assembly
61	4	30128	Bolt - 3/8-16 x 3/4 HWH
62	4	8010809	Stiffener - Front Curtain
63	4	10275	Nut - 3/8-16 KEPT
64	1	5018395	Seal - Blast Orifice Flange
65	1	507094	4" Plug Assembly - Cleanout Port
66	10	10378	.531 x 1-3/4" Washer
67	4	20246	Nut - 3/8-16 NC Flexloc
68	1	503357	Pick-Up Head Curtain Set
69	4	12155	Hitch Pin Z/P
70	2	5018703	DST Blast Orifice Backup Plate
71	10	10231	Nut - 1/2-13 Top Lock
72	4	10101	Bolt - 1/2-13 x 2 1/2 HHCS
73	4	10303	1/4" Flat Washer
74	4	20165	Screw - 1/4"-14 x 1-1/4"
75	2	20206	Nut - 5/16-18 Hex Jam
76	2	30142	Bolt - 5/16-18 x 1 13/4 Self Tap
77	15	10344	6mm Flat Washer
Not Shown	2	10171	Bolt - 3/4-10 x 3-1/2

SERVICE AND MAINTENANCE



WARNING: Before servicing, stop auxiliary engine and remove ignition key or disconnect negative battery cable.

BLAST ORIFICE OPENING - LOCATION & ADJUSTMENT

The blast orifice directs the high velocity air from the blower at an approximate 45 degree angle to the ground. Its opening should measure 3/8 inch (9.5 mm) on the left side of the pick-up head tapering to 5/8 inch (22.2 mm) opening on the right side. A larger opening will reduce the velocity and a smaller opening will restrict the air volume. To adjust, loosen the eight (8) bolts at the rear of the pick-up head and slide blast orifice assembly in or out in slotted holes until proper gap is achieved. Tighten the eight (8) mounting bolts and re-measure to be sure assembly has not moved.

NOTE: All Blast orifice measurements must be taken with auxiliary engine off!

BLAST ORIFICE OPENING - PROPER CLEARANCE

The blast orifice opening must be maintained as noted above. The distance from the ground to the opening is also critical and must be maintained. See Cross Section Drawing for proper ground clearance setting. Loosen five bolts and slide skid plate up or down in slotted holes for proper adjustment. Removing the skid plate for this adjustment is not necessary.

SUCTION AND PRESSURE HOSES

It is advisable to rotate the suction and pressure hoses 1/4 turn (90°) every 25-50 hours of use to prolong their wear life. This procedure distributes "Hot Spot" wear.

CURTAIN REPLACEMENT**USE ONLY TYMCO CURTAINS FOR REPLACEMENT**

1. Remove pick-up head from under sweeper. Turn pick-up head over to expose bottom of head and curtains. Remove the screws and angle iron clamps. (Make note how angle iron clamps are oriented so they can be reinstalled correctly.) Remove small suction baffle curtain near the nozzle.

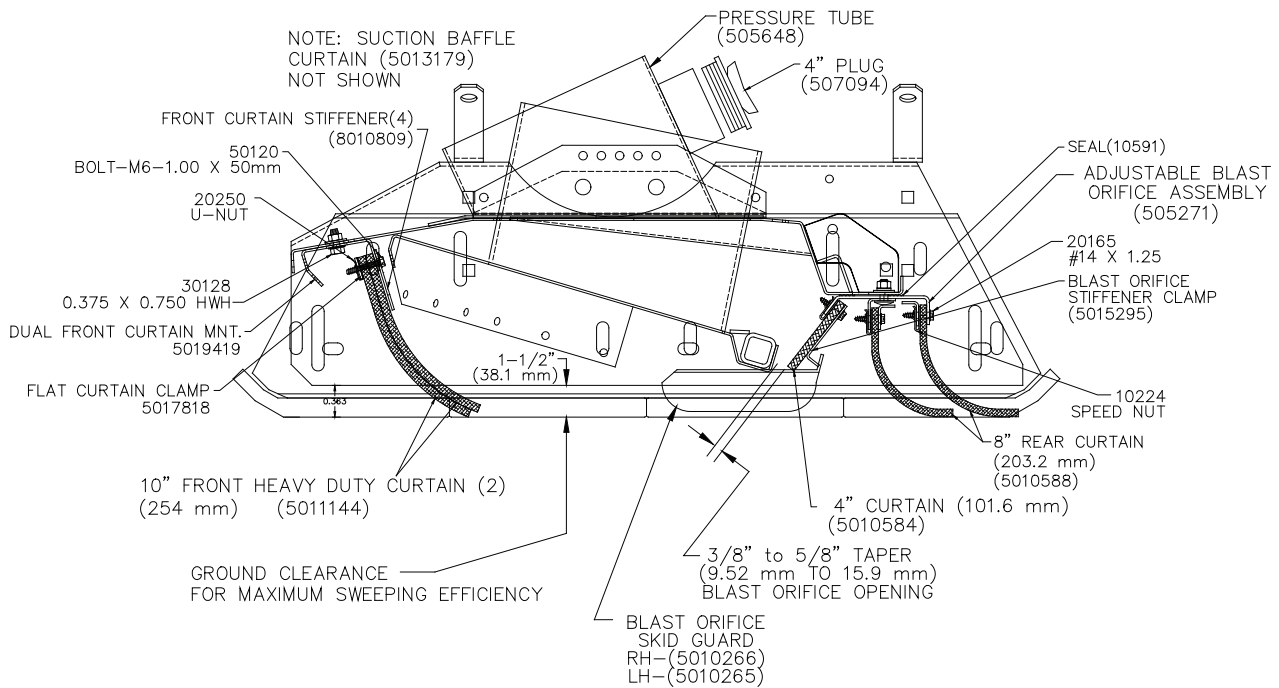


CAUTION: If sweeper is equipped with dust control system, take care not to damage water spray nozzles on pick-up head when turning it over.

2. Scrape off all debris accumulated on bottom of the pick-up head and wash off for easier rebuilding.
3. If sides of pick-up head are bent, straighten as close as possible to original configuration. Lay new curtains in place (see Cross Section drawing.) If a curtain is a little too long, trim equal amounts off each end until curtain lays perfectly flat in place.
4. Before bolting curtain in place, look closely at side of curtain and notice that it is made of a 2-ply material with a thicker layer of rubber on one side of the curtain. The thick layer is the wear surface and should be installed oriented toward the front of the pick-up head.

H

5. The curtains are now ready to be bolted on. If speed clips and screws are worn out, a complete replacement set is available from TYMCO, Part No. 500506. Make certain the angle iron clamps are installed properly.
6. When beginning to install the curtains, it is best to finger start all the curtain screws and then start tightening them from the center working gradually to each side. Do not skip around or a wavy curtain will result and faster curtain wear will occur.
7. The last curtain to install is the suction baffle curtain around the suction nozzle. Special elevator bolts are used here because their flat heads reduce restriction and do not wear as easily.
8. With all new curtains installed, adjust blast orifice opening and install pick-up head under the sweeper.

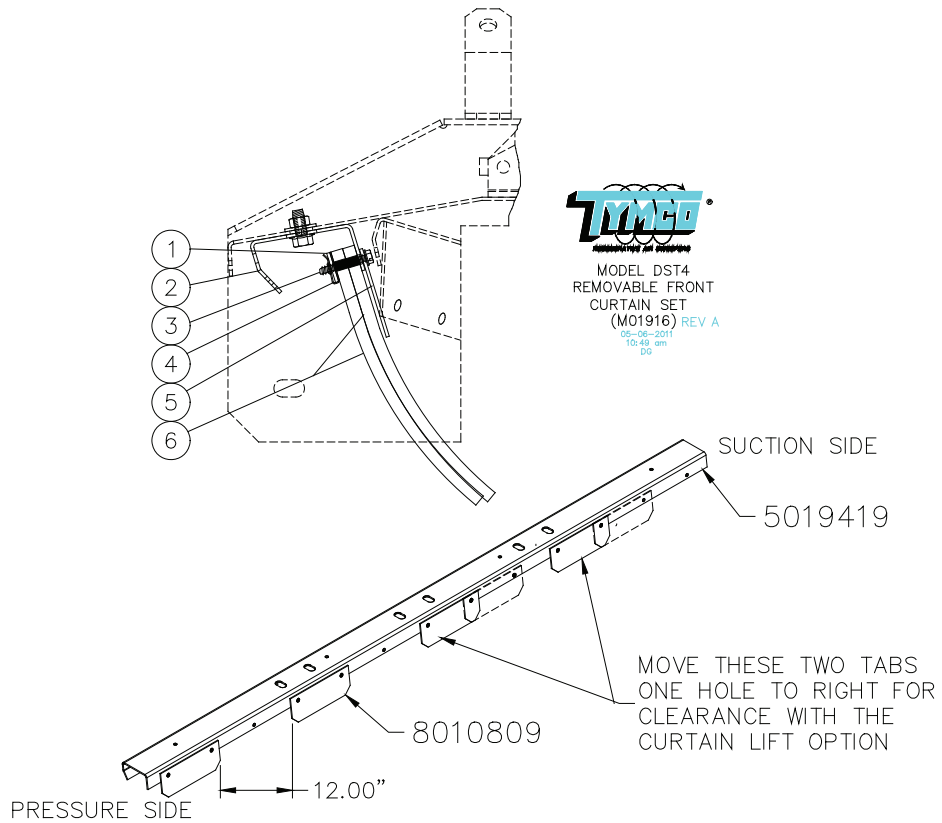


NOTE: FOR COMPLETE DST-4 CURTAIN SET ORDER # 503357.

APPLY TACKY TAPE TO ANY GAPS BETWEEN PICK UP HEAD SIDES & EDGES OF CURTAINS OR CURTAIN BRKTS.

CROSS SECTION THRU MODEL DST-4 PICKUP HEAD (M00838)REV H

06-15-2011
11:47 am
DG



**TYMCO MODEL DST-4
 REMOVABLE FRONT CURTAIN SET OPTION PARTS LIST
 DWG-M01916**

ITEM	QTY	PART NO	DESCRIPTION
	1	507371	Removable Front Curtain Set Option
1	2	5017818	Flat Curtain Clamp
2	1	5019419	Curtain Mount
3	13	50120	Bolt - M6-1.00 x 50mm
4	13	20250	U-Nut 6mm-1.00 PHOS Coat
5	4	8010809	Front Curtain Stiffener
6	2	5011144	Heavy Duty Curtain

GUTTER BROOM

TABLE OF CONTENTS CABOVER

SECTION H	PAGE
Function	I-1
Troubleshooter's Guide	I-1
Tilt Gutter Broom Assembly Drawing	I-5
Tilt Gutter Broom Assembly Parts List	I-6
Poly Wafer 30° Gutter Broom Assembly Drawing	I-8
Poly Wafer 30° Gutter Broom Assembly Parts List	I-9
No-Tilt Gutter Broom Assembly Drawing	I-11
No-Tilt Gutter Broom Assembly Parts List	I-12
Gutter Broom Tilt Cylinder Drawing & Parts List	I-14
Tilt Cylinder Service Procedure	I-15
Center Debris Deflector Assembly Drawing & Parts List	I-16
Sequence Manifold Drawing & Parts List	I-17
Service and Maintenance	I-17
Gutter Broom Lift Cylinder Assembly Drawing & Parts List	I-21
Torque Motor Assembly Drawing & Parts List	I-22
Torque Motor Service Procedure	I-23

FUNCTION

As a complement to the REGENERATIVE AIR SYSTEM, the gutter broom is designed to dig material loose from the gutter or similar areas and move it in front of the pick-up head where it can be easily picked up by the air sweeping action of the pick-up head. The gutter broom is designed to hydraulically relieve and flex up and over or in-and-out around stationary obstacles. When not in use, the gutter broom is retracted under the cab, off the pavement, and hydraulically locked in position. The remote tilt option provides the operator with the capability of adjusting the gutter broom to the pitch of the surface being swept without the use of hand tools or the need to exit the cab.

TROUBLESHOOTER'S GUIDE

- WARNING:** Before servicing, stop auxiliary engine and remove ignition key or disconnect negative battery cable.
- WARNING:** Never check for hydraulic leaks using bare hand as pressure in system could cause oil to be injected into the skin; thus causing serious injury.

PROBLEM

Gutter broom lowers but will not raise

CAUSE

No electrical power to valve bank coil.

SOLUTION

Check for defective switch and/or wiring problem. Replace/repair as required to obtain full 12V to coil.

PROBLEM**CAUSE****SOLUTION**

Gutter broom motor stalls easily	Flow control valve out of adjustment or clogged	Adjust and/or clean (see SERVICE AND MAINTENANCE Section)
	Valve bank coil defective	Check for 6.2 OHM resistance reading on ohmmeter RX1 scale.
	No ground between valve bank coil and sweeper	Check ground wire connectors.
	Defective cylinder packing or components	Repair/replace as required.
	Bent or damaged structural components in boom arm or mounting	Repair or replace.
Gutter broom raises but drifts back down	Replace O-ring; check sequence valve block bore for burrs or rough spots.	
	Cartridge valve poppet not seating properly	Clean foreign material from valve seat. Replace cartridge if damaged seat/poppet exists.
	Note: Gutter broom will rotate backward while switch is in "up" position if either or both of the above two conditions exist	
Gutter broom will not lower but motor turns	Gutter broom torque motor defective	Rebuild or replace (See SERVICE AND MAINTENANCE Section).
	Hydraulic pump pressure low	See Hydraulic Section.
Gutter broom will not lower but motor turns	Cylinder by-passing internally	Re-pack or replace cylinder.
	Electric lock valve defective	Replace lock valve.
	No electrical power to lock valve coil	Check electrical circuit for 12V to lock valve coil repair as required.
	Lock valve coil not grounded	Check ground wire, check connector ground and common power.
Gutter broom will not lower but motor turns	Defective coil	Check for 7.0 OHMS resistance on RX1 scale. Replace a required. Check coil cold.
	Lock valve stuck closed	Replace

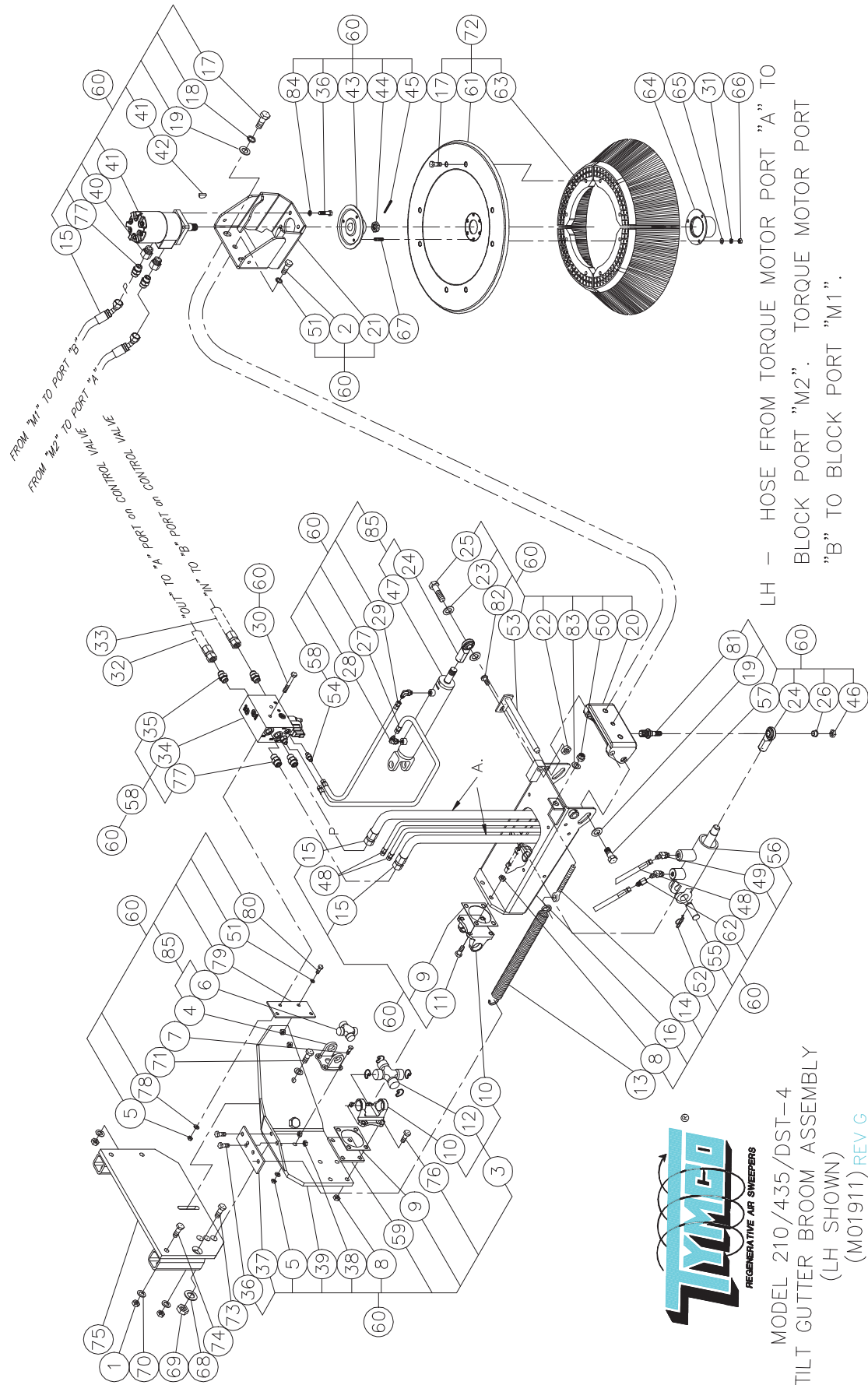
PROBLEM	CAUSE	SOLUTION
Gutter broom drops down but will not extend	Sequence valve improperly adjusted	Gutter broom sequence valve suggested adjustment is: Steel Vertical Digger bristles - 2-1/2 turns in. Poly Vertical Digger and Poly Wafer bristles - 2 turns in. Refer to SERVICE AND MAINTENANCE in this manual section for more detail.
	Spring improperly adjusted	Tighten eye bolt adjustment (See SERVICE AND MAINTENANCE Section).
	Damaged structural components	Repair or replace.
Excessive bristle wear	Universal joints stuck or damaged	Replace
	Improper adjustments	See SERVICE AND MAINTENANCE Section.
Gutter broom does not move debris in front of pick-up head properly	Bristles worn out	Replace.
	Improper angle adjustments	See SERVICE AND MAINTENANCE Section.
Gutter Broom tilt will not move	No electrical power to tilt system	Check switch and electrical wiring.
	Wrist at motor mount binding	Free up mechanical bind. Note: Wrist attaching bolts must be loose enough to allow free movement of motor mount assembly.
	Flow restrictor plugged	Remove and Clean. Location at control valve
	No hydraulic pressure	See Hydraulic Troubleshooting section.
Tilt will move in one direction only	Defective control valve coil	Check for shortened or defective coil. Should read 6.2 OHM resistance on Ohmmeter RX1 scale.
	Improper ground	Check ground wire for good connections.
	Defective control valve	See Hydraulic Troubleshooting Section
Tilt drifts out of position after setting	Defective lock valve	Remove and replace lock valve cartridge.
Torque motor cap seal leaks or failure	Tilt cylinder by-passing	Re-pack cylinder.
	Gutter broom retraction speed to fast	Set flow control to regulate retraction time to 2-1/2 to 3 seconds.

SPECIAL INSTRUCTIONS

To check and clear blocked lines, disconnect hydraulic lines one at a time at the sequence valve block. After disconnection, put hydraulic system into operation momentarily, and the force of the hydraulic oil will normally clear line of foreign materials. Also, check opening at sequence valve block while line is disconnected for any foreign material.



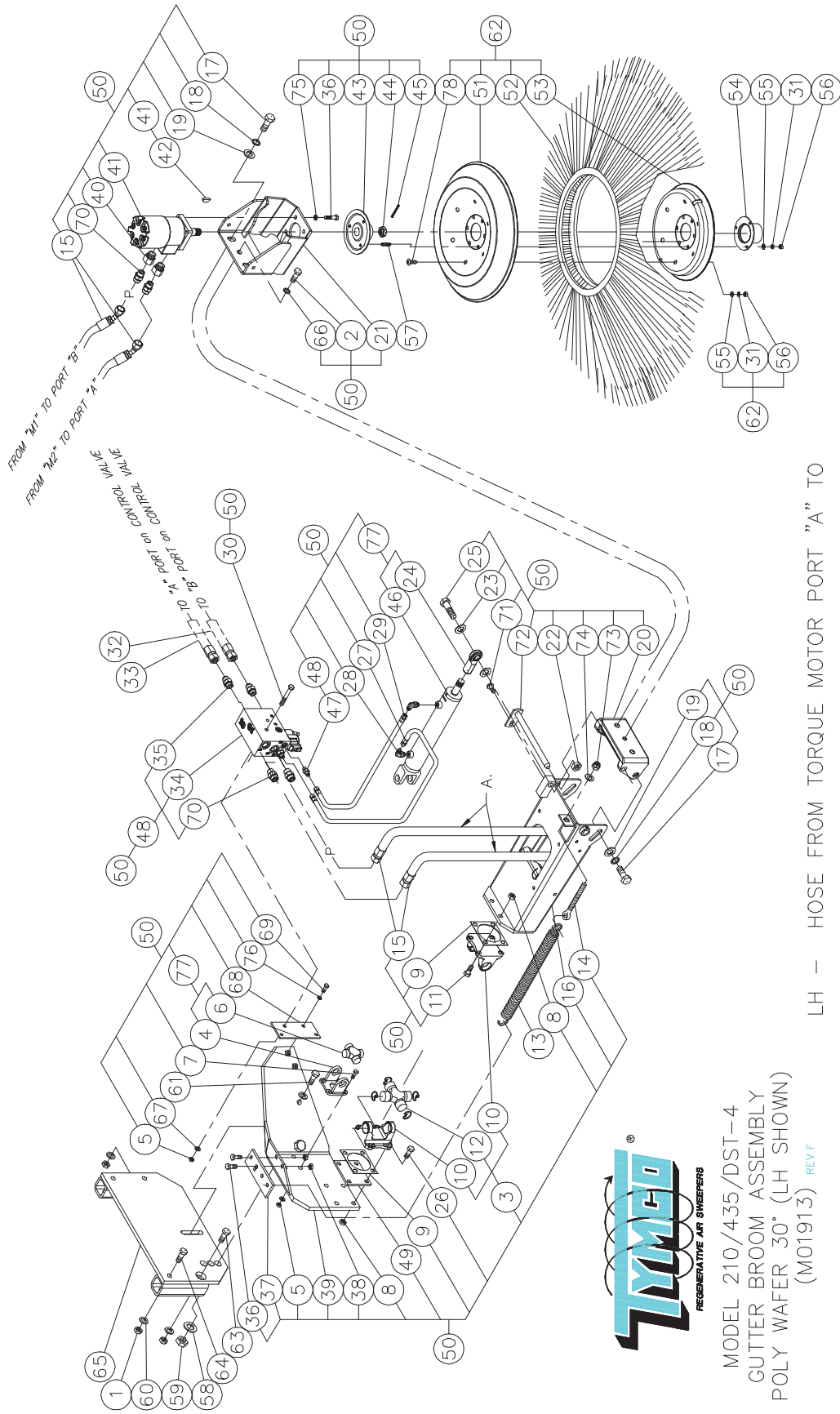
WARNING: Never check for hydraulic leaks using bare hand as pressure in system could cause oil to be injected into the skin; thus causing serious injury.



**TYMCO MODEL 210/435/DST-4
TILT GUTTER BROOM ASSEMBLY PARTS LIST
DWG-M01911**

ITEM	QTY.	PART NO.	DESCRIPTION
	1	506864	Tilt Gutter Broom Assembly (LH)
	1	506867	Tilt Gutter Broom Assembly (RH)
1	5	10231	Nut - 1/2-13 Top Lock
2	1	10138	Bolt - 1/2-13 x 1 HHCS
3	1	505793	Universal Joint Assembly
4	1	5010196	Yoke - Cylinder
5	6	10229	Nut - 5/16-18 Top Lock
6	1	5010228	Cylinder - Journal & Bearing Kit
7	4	10118	Bolt - 5/16-18 x 1-1/4 HHCS
8	8	10228	Nut - 7/16-14 Top Lock
9	2	5014713	Shim - Universal Joint
10	1	5010952	Yoke - Boom
11	4	10136	Bolt - 7/16-14 x 1-1/2 HHCS
12	1	5010229	Boom - Journal & Bearing Kit
13	1	5010960	Spring - Wire Vertical Digger
-	1	5010232	Spring - Poly Vertical Digger
14	1	10165	Bolt - 1/2-13 x 6 Eye
15	2	506497	Hose Assembly - 1/2 x 41" Hydraulic
16	1	507060	Arm Weldment (LH)
-	1	507058	Arm Weldment (RH)
17	10	10147	Bolt - 5/8-11 x 1-1/2 HHCS
18	2	10314	5/8" Lock Washer
19	4	10313	5/8" Flat Washer
20	1	506529	Wrist
21	1	507430	Hand Weldment w/5° Tilt
22	2	10227	Nut - 5/8-11 Top Lock
23	2	5011735	Machine Washer - 1-1/4
24	1	5010230	Rod End
25	1	20108	Bolt - 5/8-11 x 3 1/4" HHCS
26	1	5018501	1/2 x 5/8 Spacer Bushing
27	1	503455	Hose Assembly - 1/4 x 27" Hydraulic
28	2	20782	Fitting - 1/4 JIC x 1/4 Boss 90°
29	1	500191	Hose Assembly - 1/4 x 18" Hydraulic
30	2	13645	Bolt - 5/16-18 x 3.25 HHCS
31	3	10306	5/16" Lock Washer
32	1	(Shown for Clarity)	Hose - LH Seq. Valve to 'A' Port Control Valve
-	1	(Shown for Clarity)	Hose - RH Seq. Valve to 'B' Port Control Valve
33	1	(Shown for Clarity)	Hose - LH Seq. Valve to 'B' Port Control Valve
-	1	(Shown for Clarity)	Hose - RH Seq. Valve to 'A' Port Control Valve
34	1	509396	Manifold w/Spin Down
35	2	10786	Fitting - 1/2 Boss x 1/2 JIC Straight
36	6	10128	Bolt - 3/8-16 x 1 HHCS
37	1	5017279	Spring Bracket
38	8	10225	Nut - 3/8-16 Top Lock
39	1	503433	Shoulder Plate Weldment (LH)
-	1	503432	Shoulder Plate Weldment (RH)
40	2	30791	Fitting - 1/2 x 5/8 Boss Adapter
41	1	505831	12 CID 'T' Motor
42	1	22099	Key - Motor
43	1	5014697	Drive Hub

ITEM	QTY.	PART NO.	DESCRIPTION
44	1	10264	Castle Nut - Motor
45	1	10402	1/8 x 1-1/2 Cotter Pin
46	1	10217	Nut - 1/2-20 Nylon Lock
47	1	503360	Cylinder
48	-	(Shown for Clarity)	Hose Assembly - 1/4 x 150" Hydraulic
49	2	30731	Fitting - 1/4 JIC x 1/4 Boss 45°
50	1	20245	Nut - 1/2-13 NC Flexloc
51	2	10306	5/16" Lock Washer
52	1	10434	Rue Ring Locking Cotter - 3/4
53	1	506534	Pin - Wrist
54	2	20751	Fitting - 1/4 Boss x 1/4 JIC Straight
55	1	10405	Cylinder Clevis Pin
56	1	508832	Tilt Cylinder
57	2	40137	Bolt - 5/8-11 x 1-3/8 HHCS
58	-	509373	Gutter Broom Manifold Assembly
59	1	5017278	Spacer
60	1	506542	G.B. Tilt Sub Assembly (LH)
-	1	506543	G.B. Tilt Sub Assembly (RH)
61	1	5013553	Black Gutter Broom Disc
-	1	5022281	Gray Gutter Broom Disc (CurbView Option)
62	1	40792	Fitting - 1/4 JIC x 0.031 Restrictor Orifice
63	1	501679	Wire Vert. Digger Seg. Assy - Set of 4 (210)
-	1	505276	Wire Vert. Digger Seg. Assy - Set of 4 (435/DST-4)
-	1	505605	Poly Vert. Digger Seg. Assy - Set of 4 (210)
-	1	505602	Poly Vert. Digger Seg. Assy - Set of 4 (435/DST-4)
64	1	5012504	Nut Cover
65	3	10305	5/16" Flat Washer
66	3	10205	Nut - 5/16-18 Hex
67	3	30112	Stud - 5/16-18
68	1	10301	3/4" Flat Washer
69	1	10222	Nut - 3/4-16 Top Lock
70	6	10311	1/2" Flat Washer
71	1	10140	Bolt - 1/2-13 x 1-3/4 HHCS
72	1	503446	Vertical Digger Broom Assembly
73	1	10160	Bolt - 1/2-13 x 3-1/2 HHCS
74	3	30110	Bolt - 1/2-13 x 4-1/2 HHCS (LH)
-	3	30102	Bolt - 1/2-13 x 4 HHCS (RH)
75	1	506836	Extension Mounting Plate (LH)
-	1	506912	Extension Mounting Plate (RH)
76	4	10137	Bolt - 7/16-14 x 2 HHCS
77	4	40786	Fitting - 1/2 Boss x 1/2 Orfs Straight
78	8	10305	5/16" Flat Washer
79	1	5019501	Sequence Valve Mount
80	2	10117	Bolt - 5/16-18 x 1 HHCS
81	1	5019538	Stud Bolt - Tilt Cylinder
82	1	30128	Bolt - 3/8-16 x 3/4 HWH Type 1
83	1	10311	1/2" Flat Washer
84	4	10308	3/8" Lock Washer
85	1	507222	Hydraulic Cylinder Sub-Assembly
Not Shown	1	508846	Center Dirt Deflector Assembly

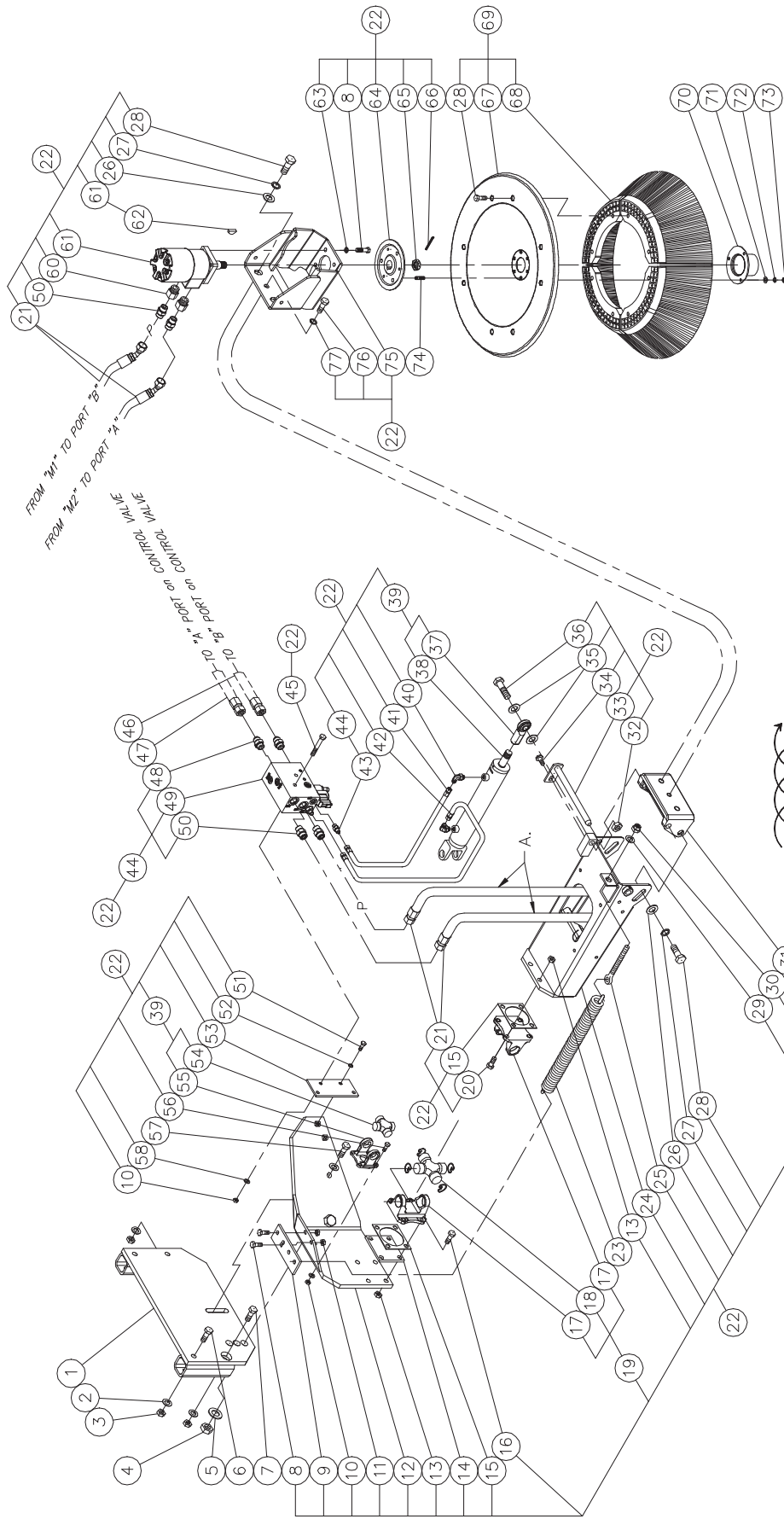


MODEL 210/435/DST-4
 GUTTER BROOM ASSEMBLY
 POLY WAFER 30" (LH SHOWN)
 (M01913) REV F

**TYMCO MODEL 210/435/DST-4
GUTTER BROOM ASSEMBLY - POLY WAFER 30° PARTS LIST
DWG-M01913**

ITEM	QTY.	PART NO.	DESCRIPTION
	1	506868	LH Gutter Broom Assembly - Poly Wafer 30°
	1	506869	RH Gutter Broom Assembly - Poly Wafer 30°
1	5	10231	Nut - 1/2-13 Top Lock
2	1	10138	Bolt - 1/2-13 x 1 HHCS
3	1	505793	Universal Joint Assembly
4	1	5010196	Yoke - Cylinder
5	6	10229	Nut - 5/16-18 Top Lock
6	1	5010228	Cylinder - Journal & Bearing Kit
7	4	10118	Bolt - 5/16-18 x 1-1/4
8	8	10228	Nut - 7/16-14 Top Lock
9	2	5014713	Shim - Universal Joint
10	2	5010952	Yoke - Boom
11	4	10136	Bolt - 7/16-14 x 1-1/2
12	1	5010229	Boom - Journal & Bearing Kit
13	1	5010232	Spring
14	1	10165	Bolt - 1/2-13 x 6 Eye
15	2	506497	Hose Assembly - 1/2 x 41" Hydraulic
16	1	507060	Arm Weldment (LH)
-	1	507058	Arm Weldment (RH)
17	4	10147	Bolt - 5/8-11 x 1-1/2 HHCS
18	4	10314	5/8" Lock Washer
19	4	10313	5/8" Flat Washer
20	1	506529	Wrist
21	1	507430	Hand Weldment w/5° Tilt
22	2	10227	Nut - 5/8-11 Top Lock
23	2	5011735	Machine Washer
24	1	5010230	Rod End
25	1	20108	Bolt - 5/8-11 x 3 1/4" HHCS
26	4	10137	Bolt - 7/16-14 x 2 HHCS
27	1	503455	Hose Assembly - 1/4 x 27" Hydraulic
28	2	20782	Fitting - 1/4 JIC x 1/4 Boss 90°
29	1	500191	Hose Assembly - 1/4 x 18" Hydraulic
30	2	13645	Bolt - 5/16-18 x 3.25 HHCS
31	3	10306	5/16" Lock Washer
32	1	(Shown for Clarity)	Hose - LH Seq. Valve to "B" Port Control Valve
-	1	(Shown for Clarity)	Hose - RH Seq. Valve to "A" Port Control Valve
33	1	(Shown for Clarity)	Hose - LH Seq. Valve to "A" Port Control Valve
-	1	(Shown for Clarity)	Hose - RH Seq. Valve to "B" Port Control Valve
34	1	509396	Manifold w/Spin Down
35	4	10786	Fitting - 1/2 Boss x 1/2 JIC Straight
36	6	10128	Bolt - 3/8 x 1 Hex Head
37	1	5017279	Spring Bracket
38	8	10225	3/8" Lock Nut
39	1	503433	Shoulder Plate Weldment (LH)
-	1	503432	Shoulder Plate Weldment (RH)
40	2	30791	Fitting - 1/2 x 5/8 Boss Adapter
41	1	505831	12 CID "T" Motor
42	1	22099	Key - Motor
43	1	5014697	Drive Hub
44	1	10264	Castle Nut - Motor

ITEM	QTY.	PART NO.	DESCRIPTION
45	1	10402	1/8 x 1-1/2 Cotter Pin
46	1	503360	Hydraulic Cylinder
47	2	20751	Fitting -1/4 Boss x 1/4 JIC Straight
48	1	509373	Gutter Broom Manifold Assembly
49	1	5017278	Spacer
50	1	506450	G.B. Sub-Assembly (LH)
-	1	506451	G.B. Sub-Assembly (RH)
51	1	5010095	Top Disc - 30°
52	2	5010231	Poly Element - Sloped
53	1	5013167	Bottom Disc Clamp
54	1	5012504	Nut Cover
55	3	10305	5/16" Flat Washer
56	3	10205	Nut - 5/16-18 Hex
57	3	30112	Stud - 5/16-18 x 1-5/16
58	1	10301	3/4" Flat Washer
59	1	10222	Nut - 3/4-16 Top Lock
60	6	10311	1/2" Flat Washer
61	1	10140	Bolt - 1/2-13 x 1-3/4 HHCS
62	1	500787	Poly Wafer Option - 30° Slope
63	1	10160	Bolt - 1/2-13 x 3-1/2 HHCS
64	3	30110	Bolt - 1/2-13 x 4-1/2 HHCS
65	1	506836	Extension Mounting Plate (LH)
-	1	506912	Extension Mounting Plate (RH)
66	1	10312	1/2" Lock Washer (LH ONLY)
67	8	10305	5/16" Lock Washer
68	1	5019501	Sequence Valve Mount
69	2	10117	Bolt - 5/16-18 x 1 HHCS
70	4	40786	Fitting - 1/2 Boss x 1/2 Orfs Straight
71	1	30128	Bolt - 3/8-16 x 3/4 HWH Type 1
72	1	506534	Pin - Wrist
73	1	20245	Nut - 1/2-13 NC Flexloc
74	1	10311	1/2" Flat Washer
75	4	10308	3/8" Lock Washer
76	2	10306	5/16" Lock Washer
77	2	507222	G.B. Hydraulic Cylinder Subassembly
78	3	20195	Bolt - 5/16-18 x 1 Truss HD



MODEL 210/435/DST-4
 GUTTER BROOM ASSEMBLY
 NO-TILT (LH SHOWN)

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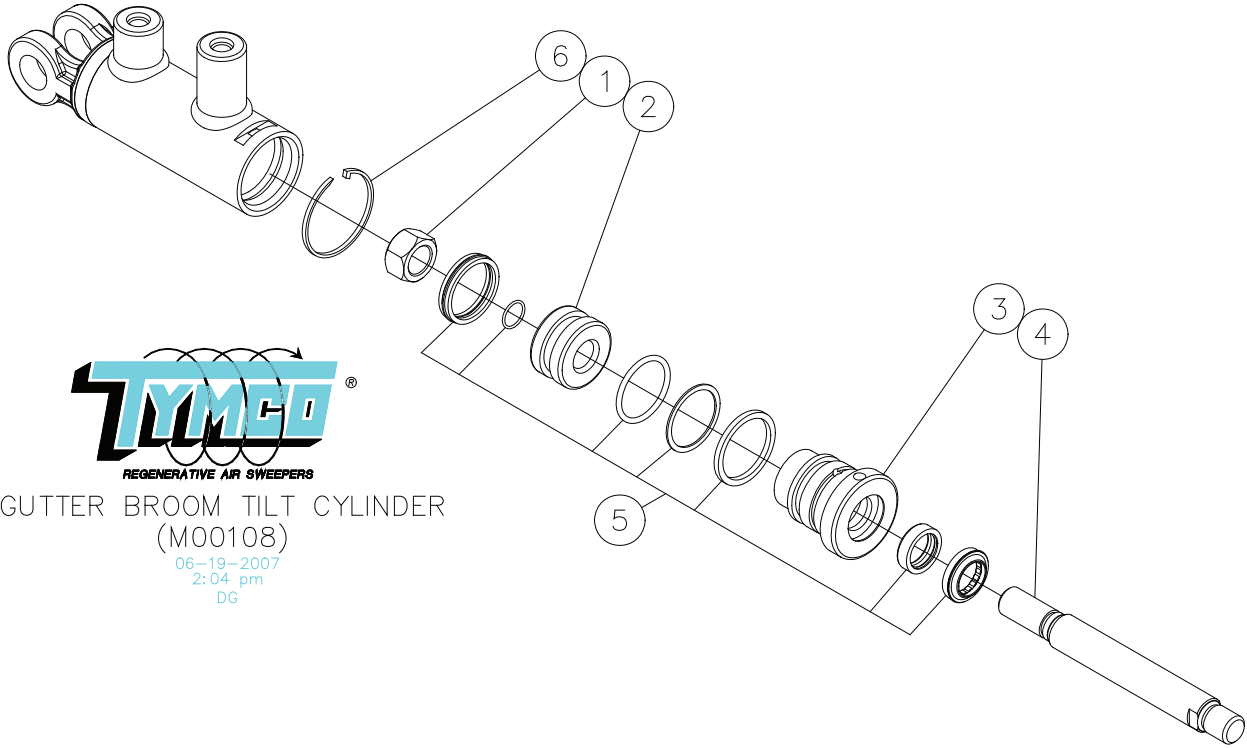
LH — HOSE FROM TORQUE MOTOR "A" TO
 BLOCK PORT "M2". TORQUE MOTOR PORT
 "B" TO BLOCK PORT "M1".

RH — HOSE FROM TORQUE MOTOR "B" TO
 BLOCK PORT "M2". TORQUE MOTOR PORT
 "A" TO BLOCK PORT "M1".

**TYMCO MODEL 210/435/DST-4
GUTTER BROOM ASSEMBLY NO-TILT PARTS LIST
DWG-M01912**

ITEM	QTY.	PART NO.	DESCRIPTION
	1	506865	Gutter Broom Assembly No-Tilt (LH)
	1	506866	Gutter Broom Assembly No-Tilt (RH)
1	1	506836	Extension Mounting Plate (LH)
-	1	506912	Extension Mounting Plate (RH)
2	6	10311	1/2" Flat Washer
3	5	10231	Nut - 1/2-13 Top Lock
4	1	10222	Nut - 3/4-16 Top Lock
5	1	10301	3/4" Flat Washer
6	3	30110	Bolt - 1/2-13 x 4-1/2 HHCS
-	3	30102	Bolt - 1/2-13 x 2 HHCS (RH)
7	1	10160	Bolt - 1/2-13 x 3.5 HHCS (LH)
8	6	10128	Bolt - 3/8 x 1 HHCS
9	1	5017279	Spring Bracket
10	6	10229	Nut - 5/16-18 Fiber Lock
11	8	10225	3/8" Lock Nut
12	1	503433	Shoulder Plate Weldment (LH)
-	1	503432	Shoulder Plate Weldment (RH)
13	8	10228	Nut - 7/16-14 Top Lock
14	1	5017278	Spacer
15	2	5014713	Shim - Universal Joint
16	4	10137	Bolt - 7/16-14 x 2 HHCS
17	2	5010952	Yoke - Boom
18	1	5010229	Boom - Journal & Bearing Kit
19	1	505793	Universal Joint Assembly
20	4	10136	Bolt - 7/16-14 x 1-1/2
21	2	506497	Hose Assembly - 1/2 x 41" Hydraulic
22	1	506450	G.B. Subassembly (LH)
-	1	506451	G.B. Subassembly (RH)
23	1	5010960	Spring - Wire Vertical Digger
-	1	5010232	Spring - Poly Vertical Digger
24	1	507060	Arm Weldment (LH)
-	1	507058	Arm Weldment (RH)
25	1	10165	Bolt - 1/2-13 x 6 Eye
26	4	10313	5/8" Flat Washer
27	4	10314	5/8" Lock Washer
28	12	10147	Bolts - 5/8-11 x 1-1/2
29	4	10311	1/2" Flat Washer
30	1	20245	Nut - 1/2-13 NC Flexloc
31	1	506529	Wrist
32	2	10227	Nut - 5/8-11 Top Lock
33	1	506534	Pin - Wrist
34	1	30128	Bolt - 3/8-16 x 3/4 HWH Type 1
35	2	5011735	Machine Washer - 1-1/4
36	1	20108	Bolt - 5/8-11 x 3 1/4" HHCS
37	1	5010230	Rod End
38	1	503360	Hydraulic Cylinder
39	1	507222	Hydraulic Cylinder Subassembly
40	2	20782	Fitting - 1/4 JIC x 1/4 Boss 90°
41	1	500191	Hose Assembly - 1/4 x 18" Hydraulic
42	1	503455	Hose Assembly - 1/4 x 27" Hydraulic

ITEM	QTY.	PART NO.	DESCRIPTION
43	2	20751	Fitting - 1/4 Boss x 1/4 JIC Straight
44	1	509373	Gutter Broom Manifold Assembly
45	2	13645	Bolt - 5/16-18 x 3.25 HHCS
46	1	(Shown for Clarity)	Hose - LH Seq. Valve to "B" Port Control Valve
-	1	(Shown for Clarity)	Hose - RH Seq. Valve to "A" Port Control Valve
47	1	(Shown for Clarity)	Hose - LH Seq. Valve to "A" Port Control Valve
-	1	(Shown for Clarity)	Hose - RH Seq. Valve to "B" Port Control Valve
48	4	10786	Fitting - 1/2 Boss x 1/2 JIC Straight
49	1	509393	Manifold w/Spin Down
50	4	40786	Fitting - 1/2 Boss x 1/2 Orfs Straight
51	2	10117	Bolt - 5/16-18 x 1 HHCS
52	2	10306	5/16" Lock Washer
53	1	5019501	Sequence Valve Mount
54	1	5010228	Cylinder - Journal & Bearing Kit
55	1	5010196	Yoke - Cylinder
56	4	10118	Bolt - 5/16-18 x 1-3/4 HHCS
57	1	10140	Bolt - 1/2-13 Hex Head x 1 3/4
58	8	10305	5/16" Flat Washer
59	-	-	-
60	2	30791	Fitting - 1/2 x 5/8 Boss Adapter
61	1	505831	12 CID "T" Motor
62	1	22099	Key - Motor
63	4	10308	3/8" Lock Washer
64	1	5014697	Drive Hub
65	1	10264	Castle Nut - Motor
66	1	10402	1/8 x 1-1/2 Cotter Pin
67	1	5013553	Black Gutter Broom Disc
-	1	5022281	Gray Gutter Broom Disc (CurbView Option)
68	1	501679	Wire Vert. Digger Seg. Assy (Set of 4) (210)
-	1	505276	Wire Vert. Digger Seg. Assy (Set of 4) (435/DST-4)
-	1	505605	Poly Vert. Digger Seg. Assy (Set of 4) (210)
-	1	505602	Poly Vert. Digger Seg. Assy (Set of 4) (435/DST-4)
69	1	503446	Vertical Digger Broom Assembly
70	1	5012504	Nut Cover
71	3	10305	5/16" Flat Washer
72	3	10306	5/16" Lock Washer
73	3	10205	Nut - 5/16
74	3	30112	Stud - 5/16-18 x 1-5/16
75	1	507430	Hand Weldment w/5° Tilt
76	1	10138	Bolt - 1/2-13 x 1 HHCS
77	1	10312	1/2" Lock Washer
Not Shown	1	508846	Center Dirt Deflector Assembly



GUTTER BROOM TILT CYLINDER
(M00108)

06-19-2007
2:04 pm
DG

**TYMCO MODEL 210/435/DST-4
GUTTER BROOM TILT CYLINDER PARTS LIST
DWG-M00108**

ITEM	QTY	PART NO	DESCRIPTION
	1	508832	Gutter Broom Tilt Cylinder Assembly
1	1	12204	Lock Nut
2	1	22269	Piston
3	1	12207	Head
4	1	22270	Rod
5	1	22258	Seal Kit
6	1	12203	Retaining Ring

TO DISASSEMBLE:



WARNING: Before servicing, stop auxiliary engine and remove ignition key or disconnect negative battery cable.

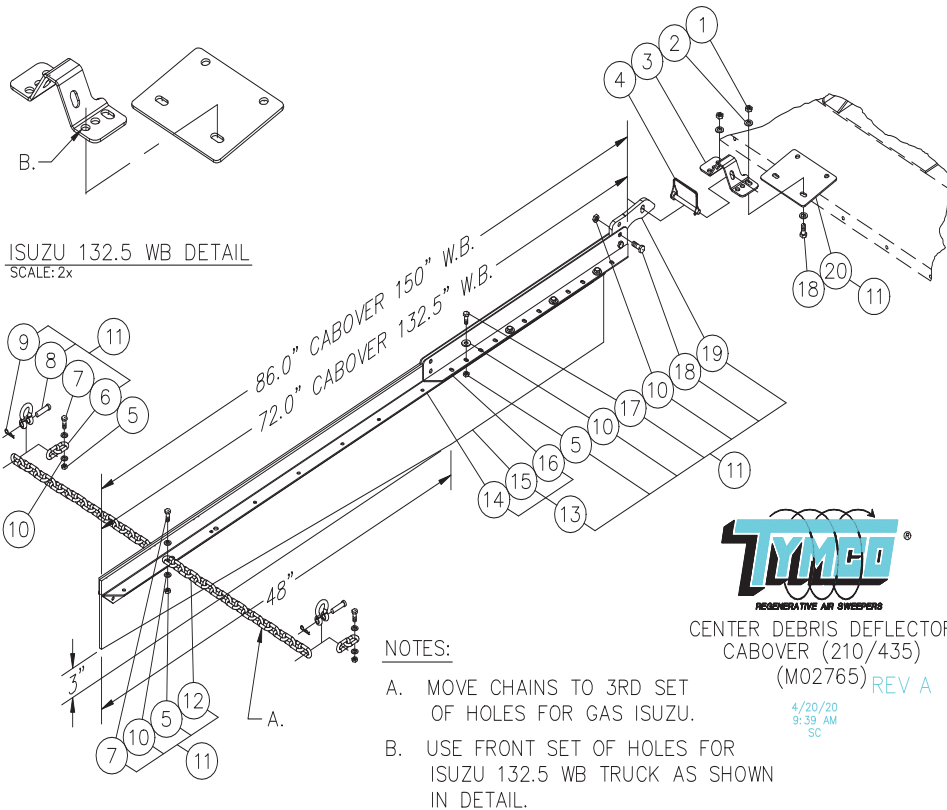
Before beginning disassembly, prepare an oil bath of clean SAE-10 oil to receive parts as described in the following procedures. Refer to Drawing M00108, Gutter Broom Tilt Cylinder Assembly.

NOTE: See Gutter Broom Cylinder Parts List for seal kit part number.

1. Cap off cylinder ports, wash and wipe cylinder clean and free from all dirt. Remove caps and pull rod (4) slowly until fully extended and all oil has been dispersed. Then push the rod back in.
2. Clamp in a vise (not too tightly) around cylinder tube with retaining ring (6) slot face up.
3. Use spanner wrench (if available) or pipe wrench and gently turn head (3) until separation of retaining ring (6) is in sight through retaining ring slot. Turn into a suitable position and insert a small screwdriver underneath retaining ring sharp leading edge. Hold screwdriver in place and turn head (6) until retaining ring is started on outside of slot. Remove screwdriver and turn head until retaining ring is free.
4. Pull on rod (4) and remove complete rod assembly.
5. Remove nut (1), slide components free from rod. Discard seals (5). Place all small components in oil bath and wash clean. Check for burrs and metal objects on small components, rod (4) and tube.

TO ASSEMBLE:

1. Lubricate all new seals and place them on matching parts as shown in Drawing M00108.
2. Slide head (3) onto rod (4). Place piston (2) on end of rod and screw nut (1) down tight.
3. Insert rod assembly into tube, giving a slight twist while inserting into tube. Push rod until bottomed out.
4. Tap head (3) into tube and turn until retaining ring hole aligns with slot in tube. Insert bent end of retaining ring (6) into hole and turn head until ring is completely inside of tube, then twist head a quarter of a turn.

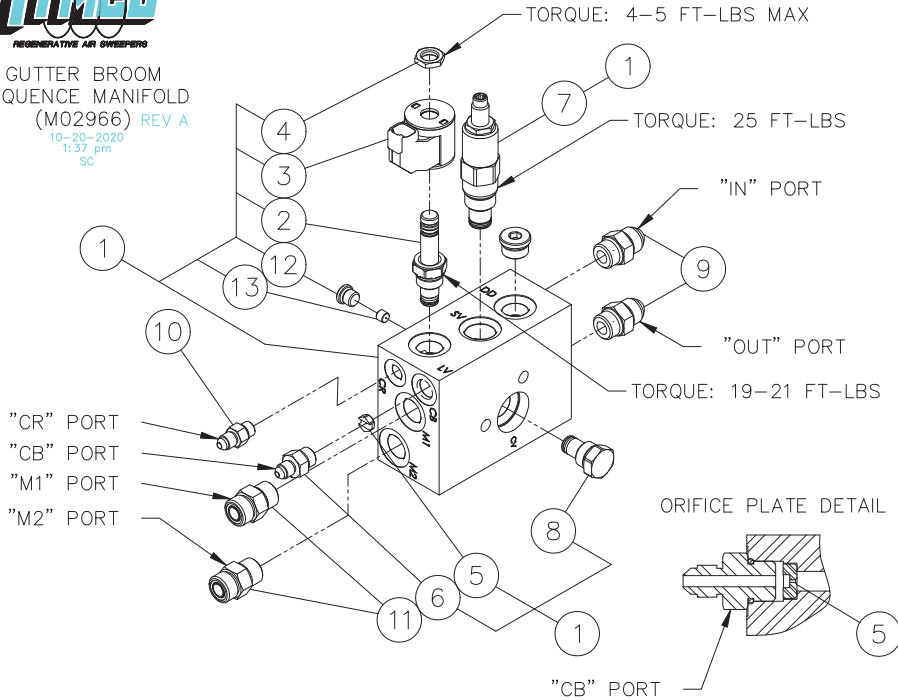


**CENTER DEBRIS DEFLECTOR - CABOVER 210/435/DST-4
DWG-M02765**

ITEM	QTY	PART NO	DESCRIPTION
	1	508846	Center Debris Deflector Assembly
1	4	10225	Nut - 3/8-16 Top Lock
2	4	10307	3/8" Flat Washer
3	1	5021783	Hanger Mount
4	1	13231	Snap Pin - 3/8 x 3
5	2	10229	Nut - 5/16-18 Top Lock
6	2	5016796	1/4" Chain x 2 Links
7	2	10119	Bolt - 5/16-18 x 1-3/4 HHCS
8	2	12154	Clevis - 5/16
9	2	12155	Hitch Pin Z/P
10	2	10305	5/16" Flat Washer
11	1	508842	Center Dirt Deflector Assembly (Diesel 132.5" WB)
-	1	508843	Center Dirt Deflector Assembly (Diesel 150" WB)
-	1	509143	Center Dirt Deflector Assembly (Gas 132.5" WB)
12	1	5013491	1/4" Chain x 18 Links
13	1	800387-E	Subassembly + Adjustable Dirt Deflector
14	2	8010578	Curtain Mounting
15	1	5011376	Debris Curtain
16	2	8010955	Angle Bracket
17	6	10117	Bolt - 5/16-18 x 1 HHCS
18	4	10128	Bolt - 3/8-16 x 1 HHCS
19	1	5021784	Hanger
20	1	5021807	Mount Extension (Diesel Only)
Not Shown	12	10224	#14-14 U-Type Speed Nut
Not Shown	12	20165	Screw - 1/4"-14 x 1-1/4"



GUTTER BROOM
SEQUENCE MANIFOLD
(M02966) REV A
10-20-2020
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**ALL TYMCO MODELS
SEQUENCE MANIFOLD PARTS LIST
DWG-M02966**

ITEM	QTY	PART NO	DESCRIPTION
	1	509373	Gutter Broom Sequence Manifold Assy w/Fittings
1	1	509396	Gutter Broom Sequence Manifold
2	1	13586	Lock Valve
3	1	21811	Coil - Size 8
4	1	(Comes w/13586)	Nut
5	1	13665	Orifice Plate - 0.037 Dia.
6	1	20742	Fitting - 3/8 Boss x 1/4 JIC
7	1	13582	Gutter Broom Sequence Valve
8	1	13584	Spin Down Check Valve
9	2	10786	Fitting - 1/2 Boss x 1/2 JIC Str.
10	1	20751	Fitting - 1/4 Boss x 1/4 JIC Str.
11	2	40786	Fitting - 1/2 Boss x 1/2 ORFS Str.
12	1	-	Fitting - 1/4 ORB Plug
13	1	13752	Orifice Plug .063 Dia.

SERVICE AND MAINTENANCE

There are four adjustments related to proper performance of the gutter broom. When making any of the following adjustments, refer to the proper drawing and components:

- | | | |
|---------------------------------------|---|--|
| 1. Gutter Broom Initial Down Pressure | - | Sequence Valve Block Cartridge Valve |
| 2. Gutter Broom Bristle Wear | - | Gutter Broom Spring |
| 3. Gutter Broom Angle | - | Gutter Broom Angle Bracket (Wrist) |
| 4. Gutter Broom Tilt | - | Gutter Broom Mounting Plate and Motor Mount Bracket (Hand) |

DOWN PRESSURE ADJUSTMENT

Always place broom on a smooth surface when making adjustments. The hydraulically operated gutter broom is spring suspended to help counter the hydraulic cylinder force for proper down pressure (depending on the bristle type) the cartridge sequence valve must be properly adjusted. Using a 3/16 Allen wrench, set the adjustment screw on the top of the valve as follows - suggested settings:

- Steel Vertical Digger Bristles - 2-1/2 turns in on sequence valve, 1 turn in on flow control valve
- Poly Wafer and Poly Digger Bristles - 2 turns in on sequence valve, 1 turn in on flow control valve

Once adjusted, no further sequence valve setting should be required unless the bristle type is changed.

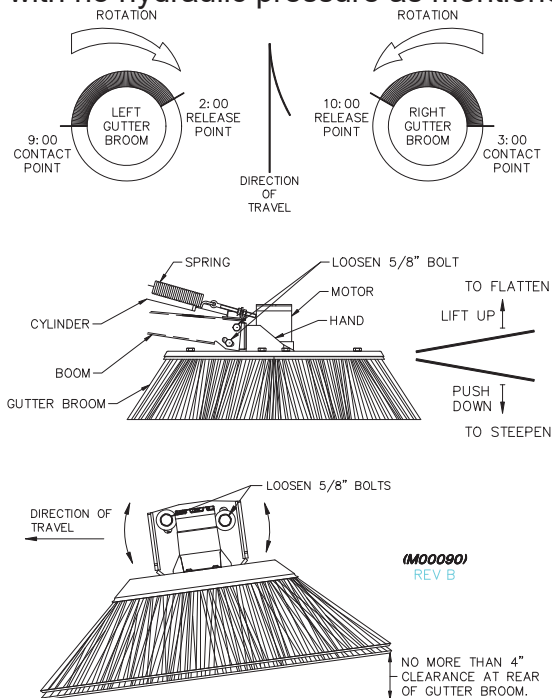


Attention: Adjusting the sequence valve adjustment screw too far into the valve will make the broom too rigid and may result in damage to the broom components!

BRISTLE WEAR ADJUSTMENT

The most frequent adjustments made on the gutter broom will be spring tension and angle. Operating the gutter broom with a minimum of bristle wear is encouraged and, by keeping proper spring tension, the bristles will have a much longer life.

Do not adjust the cartridge valve to raise or lower the broom. The gutter broom spring counteracts the hydraulic cylinder force. With the gutter broom turned off and in the down position, the spring should be adjusted to hold the broom from 1 to 2 inches (25.4 to 50.8 mm) off the ground without the help of hydraulics. As the bristles wear, the broom should be lowered with spring adjustment to compensate for the shorter bristles. Simply loosen the nut on the eye bolt. The steel gutter broom bristles are replaced when the wire becomes approximately four inches long. When replacing broom with new filler, the spring must be tightened so that the tips of the bristles are 1 to 2 inches (25.4 to 50.8 mm) off the ground with no hydraulic pressure as mentioned.



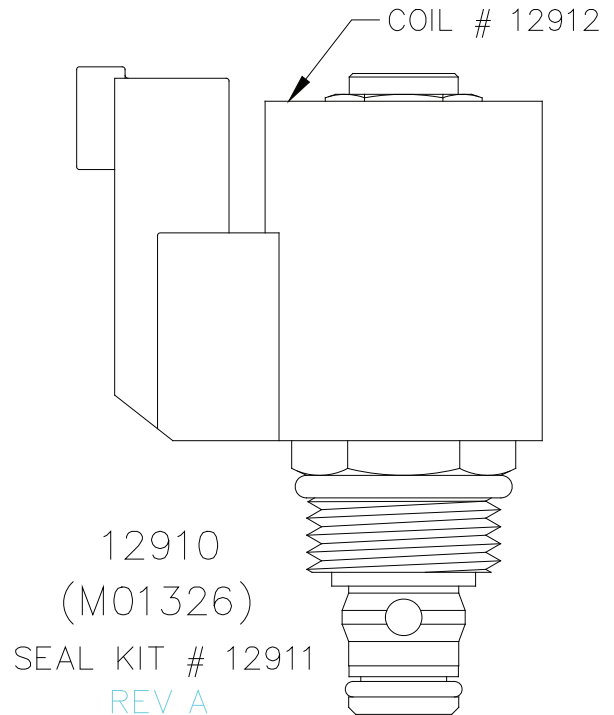
ANGLE ADJUSTMENT

The Gutter Broom Tilt referred to in this manual is regulated by adjusting the gutter broom hand up or down. This adjustment allows you to achieve the desired pattern. A steeper pattern would be used for severe variations in gutter depth; a flatter pattern is used if the gutter broom is needed for a wider path.

The Gutter Broom Angle (or forward tilt) refers to the twist of the gutter broom hand. This can be adjusted to achieve the desired contact area of the broom (contact and release points) with the ground.

(A)
ELECTRIC LOCK VALVE
DWG-M01170

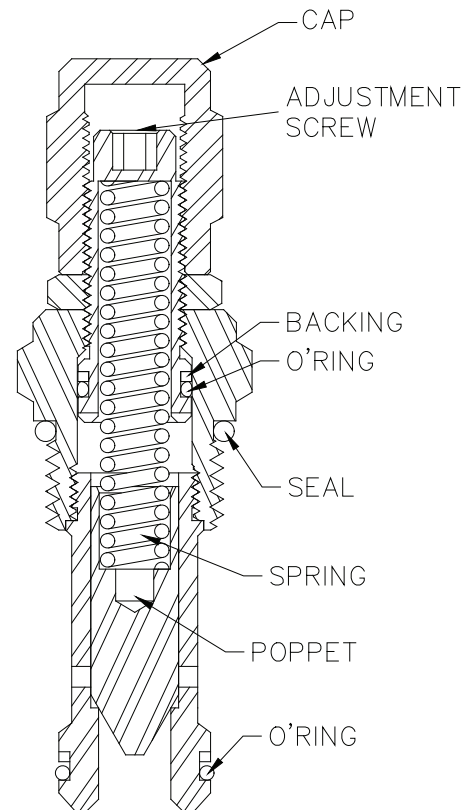
The Electric Lock Valve is used to hold the gutter broom up when the sweeper is in transit or the broom is not in use. A 12V DC current to the lock valve coil is required to lower the broom. No maintenance is required for the lock valve assembly; however, adequate voltage and ground is necessary for proper function. Normal coil resistance when cold is 7.0 OHMS.



(B)
CARTRIDGE SEQUENCE VALVE
DWG-M01327
(505172)

The cartridge valve is found screwed into the top of the aluminum sequence valve block. An adjustment screw is found on the top of the valve and is adjusted using a 3/16 Allen wrench. This setting puts just enough hydraulic pressure to base end of cylinder so that broom will go down and stay extended but also lets broom retract if it hits the curb or any other solid object. If adjustment screw is adjusted too far into the valve head, too much hydraulic pressure at the base end of gutter broom cylinder will occur and broom could be damaged if run into the curb. Always tighten jam nut and reinstall cap after adjusting.

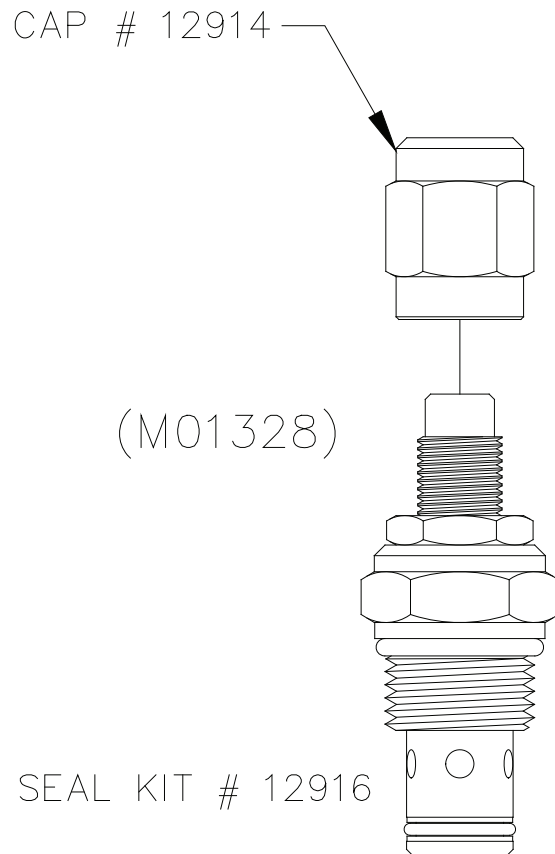
Seal Kit Part No. 5011237

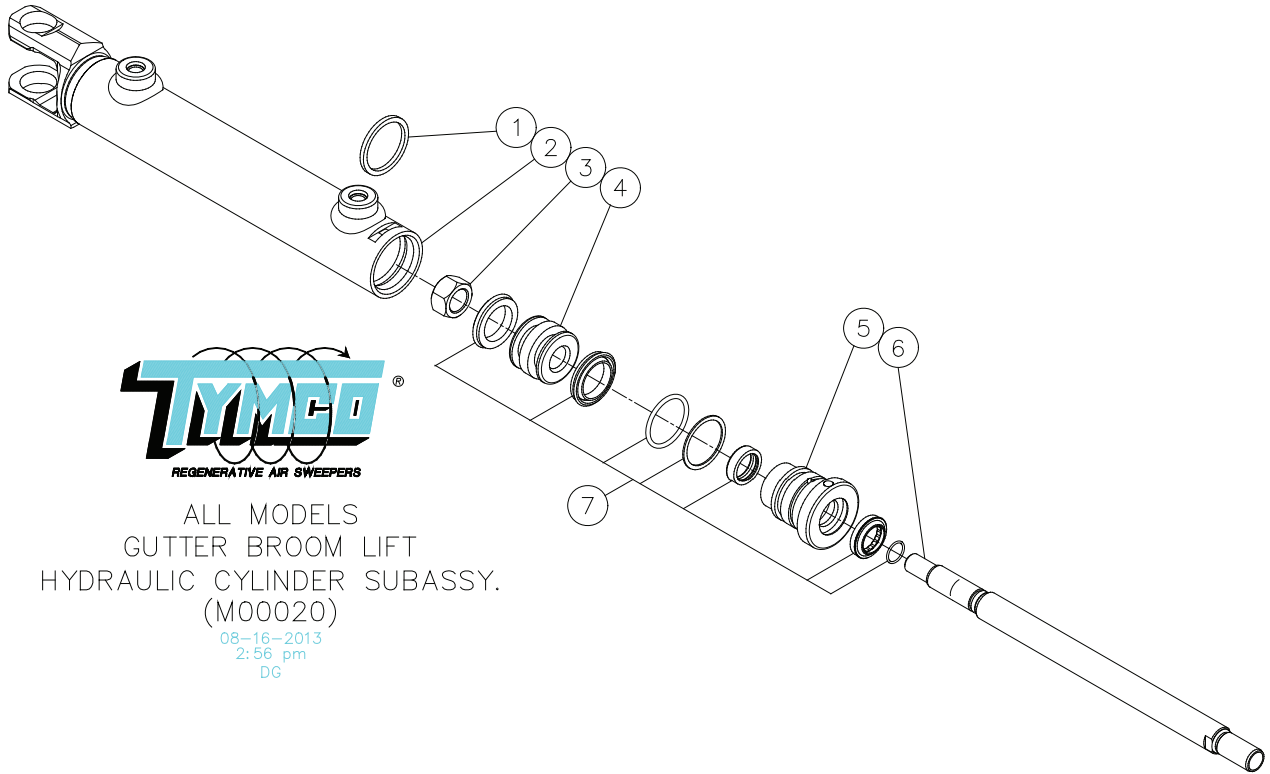


SEAL KIT # 5011237
 CARTRIDGE VALVE ASSY
 (M01327)

(C)
FLOW CONTROL VALVE
DWG-M01328
(12915)

The flow control valve controls how fast the gutter broom raises by restricting the flow of oil from the base end port of the gutter broom cylinder. Set broom retraction speed from 2.5 to 3.0 seconds. Faster speeds can cause torque motor seal damage. The flow control valve has an adjustable screw used to set the upward speed for the gutter broom. Before the screw can be adjusted, a jam nut must be released to unlock the screw. To slow upward speed of the gutter broom, turn the screw clockwise using 3/16 Allen wrench. Once the desired rate of ascent is obtained, tighten jam nut and reinstall cap.





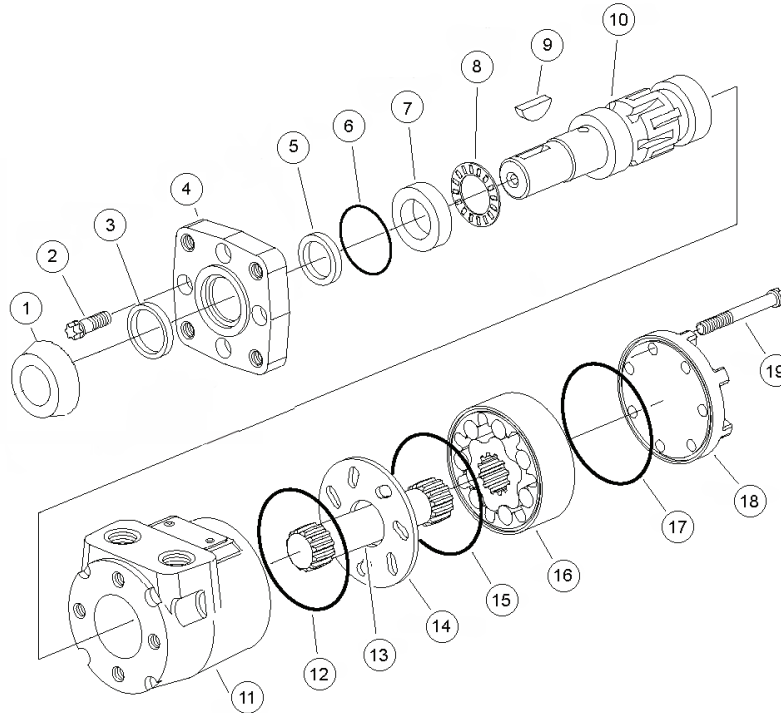
**GUTTER BROOM
LIFT CYLINDER ASSEMBLY PARTS LIST
DWG-M00020**

ITEM	QTY.	PART NO.	DESCRIPTION
	1	503360	Gutter Broom Lift Cylinder Assembly
1	1	12203	Retaining Ring
2	1	-	Tube Assembly
3	1	12204	Lock Nut
4	1	12205	Piston
5	1	12207	Head
6	1	-	Rod
7	1	5012771	Seal Kit

NOTE: TYMCO DOES NOT STOCK ANY BASE PARTS. (Seal Kits Only)

Refer to Hydraulic Section for Hydraulic Cylinder Disassembly/Reassembly

**TYMCO MODEL 210/435/DST-4
TORQUE MOTOR ASSEMBLY PARTS LIST
DWG-M00717**



**TORQUE MOTOR ASSEMBLY PARTS LIST
DWG-M00717**

ITEM	QTY	PART NO	DESCRIPTION
	1	505831	Torque Motor Assembly (12 CID)
1	1	22096	Seal Protector
2	4	22098	Cap Screw - Mounting Flange
3*	1	_____	Exclusion Seal
4	1	_____	Mounting Flange
5	1	_____	High Pressure Seal
6*	1	_____	Seal
7	1	22093	Bearing Race
8	1	22094	Needle Thrust Bearing
9	1	22099	Woodruff Key
10	1	22095	Output Shaft
11	1	_____	Housing
12*	1	_____	Seal
13	1	22091	Drive Link (12 CID)
14	1	_____	Spacer Plate
15*	1	_____	Seal
16	1	_____	Geroler
17*	1	_____	Seal
18	1	_____	End Cap
19	7	22097	Cap Screw
-	-	22089	Tool - Seal Kit
-	-	22088	Seal Kit - 'T' Motor

NOTE: TYMCO DOES NOT STOCK ANY BASE PARTS UNLESS NOTED. (Seal Kits Only)

* Indicates item included in seal kit.

BROOM TORQUE MOTOR (505831)

TO DISASSEMBLE:

WARNING: Before servicing, stop auxiliary engine and remove ignition key or disconnect negative battery cable.

Cleanliness is extremely important when repairing hydraulic motors. Work in a clean area. Before disconnecting the hydraulic lines, clean the port area of the motor. Then plug the ports and thoroughly clean the exterior of the motor. Check the output shaft, remove any burrs, nicks, or sharp edges.

1. Clamp the motor in a vise so the shaft is vertical and the end cap is on top. Clamp on the mounting flange using just enough clamping force to hold the motor securely. Protect the mounting flange with soft vise jaws.
2. Remove the seven cap screws from the end cap and disassemble the motor as shown in Figure 1. Do not disassemble the Geroler.
3. Unclamp the motor and remove the output shaft, thrust needle bearing, and thrust bearing race (see Figure 2).

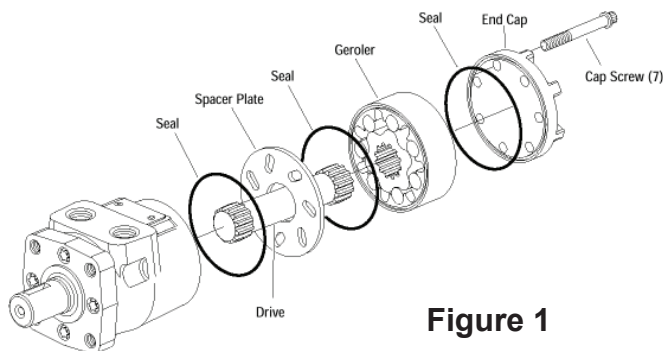


Figure 1

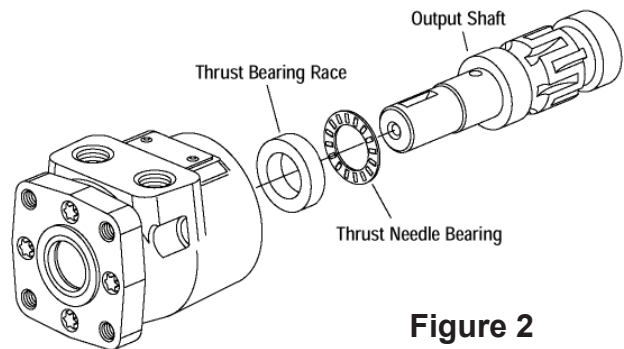


Figure 2

4. Clamp the motor in a vise so the mounting flange is on top. Clamp across the port area. Do not clamp on the motor housing. Use just enough clamping force to hold the motor securely.
5. Remove the four cap screws that hold the mounting flange to the motor housing.

CAUTION: These screws were secured with Loctite during assembly. Do Not exceed 56 Nm (500 lb-in) of removal torque.

If the Loctite is holding the screws too tightly, heat the motor housing, with a propane torch, while turning the screw. Apply heat to where the screw threads into the motor housing, see Figure 3. Apply just enough heat to remove the screw, do not overheat the motor housing or mounting flange.

6. Remove the mounting flange from the motor housing. The exclusion seal and pressure seal will come off with the mounting flange.

- Carefully remove the exclusion seal and pressure seal from the mounting flange. A seal removal tool may be fabricated by bending and rounding the end of a small blade screwdriver, see Figure 4.

Important: Do not damage the mounting flange where the shaft passes through it.

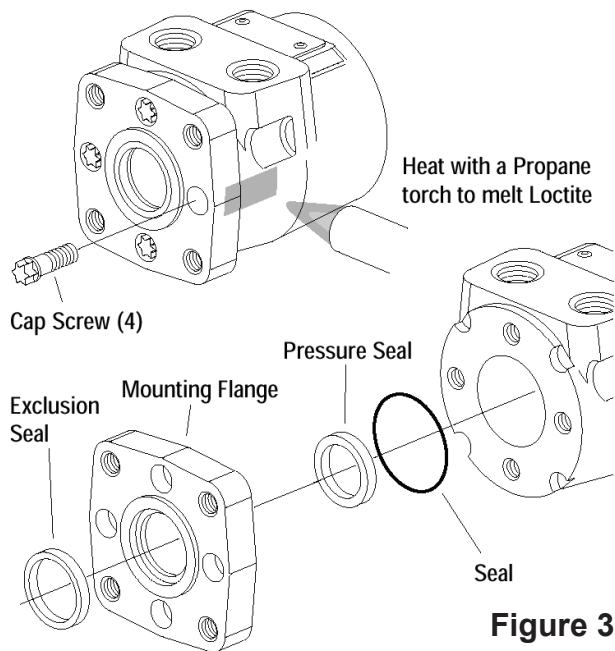


Figure 3

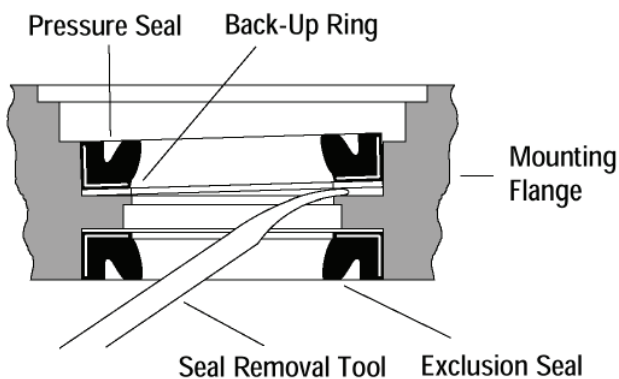


Figure 4

TO ASSEMBLE:

Check all mating surfaces. Replace any parts with scratches or burrs that could cause leakage. Wash all metal parts in clean solvent. Blow them dry with pressurized air. Do not wipe parts dry with paper towels or cloth as lint in a hydraulic system will cause damage. Check the key way and chamfered area of the output shaft; remove any nicks, burrs, or sharp edges that could damage the shaft seals during reassembly.

NOTE: Always use new seals when reassembly hydraulic motors. Refer to parts list 6-146 for seal kit part numbers, replacement parts, and ordering information.

IMPORTANT: During reassembly lubricate the new seals with a petroleum jelly such as Vaseline. Also lubricate machined surfaces and bearings with clean hydraulic fluid.

- Remove all of the old Loctite from the mounting flange cap screws and their threaded holes. The threads must be clean and dry for the new Loctite to hold properly.
- Lubricate and install the output shaft, needle thrust bearing, and bearing race into the housing.

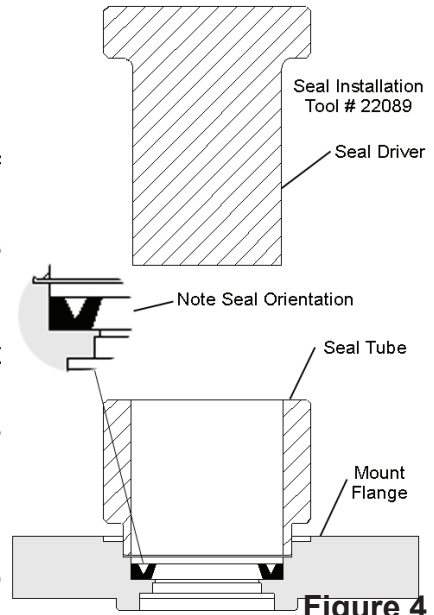
IMPORTANT: Do not permit oil to get into the four threaded holes.

- Lubricate the exclusion seal and press it into its seat in the mounting flange. Figure 5 shows the correct seal orientation.

- Lubricate and install the pressure seal. Use seal installation tool no. 600523 to press the pressure seal into place (see Figure 5).

IMPORTANT: Be sure the exclusion seal and pressure seal are undamaged and properly seated.

- Apply three or four drops of Loctite 277 to the threads of the four holes in the motor housing where the mounting flange will be attached. Apply the Loctite so that it coats the threads. Remove all excess Loctite.
- Install a protective sleeve or bullet over the output shaft. Lubricate the inner edges of the exclusion and pressure seals. Lubricate and install the 49 mm (1-15/16 in.) diameter o-ring seal on the mounting flange. Then slide the mounting flange down over the shaft.
- Remove the protective sleeve and install the four cap screws. Tighten the cap screws, in a crisscross pattern, to 28 Nm (250 lb-in). Be sure the output shaft does not fall out of the housing.



- Pour clean hydraulic fluid into the motor to provide start-up lubrication.
- Lubricate and install one of the three largest diameter seals in the groove in the motor housing.
- Install the drive

NOTE: If the spindle ends of the drive are different lengths, install the longer end into the shaft.

Motor Timing

- Align shaft timing dot with any bolt hole. Bolt hole will be used for timing reference.
- Install spacer plate, and note the position of the threaded hole in housing aligned with the timing dot on shaft.

IMPORTANT: Be sure the slots in the spacer plate provide passage for hydraulic fluid as well as the cap screws. If the spacer plate is flipped the motor will not operate.

- Lightly stretch, lubricate and install the second of three large diameter seals in the groove in the Geroler.
- Install the Geroler.

Standard Timing Align any star point with the threaded hole noted for the location of the timing dot (see Figure 6).

Reverse Timing Align any star valley with the threaded hole noted for the location of the timing dot (see Figure 6).

15. Rotate the Geroler to align the screw holes and install drive spacer if applicable.
16. Lubricate and install the last one of the three large diameter seals in the groove in the end cap.
17. Install the end cap and seven cap screws.
18. Tighten the cap screws in a crisscross pattern, to 27-28 Nm (235-250 lb-in).

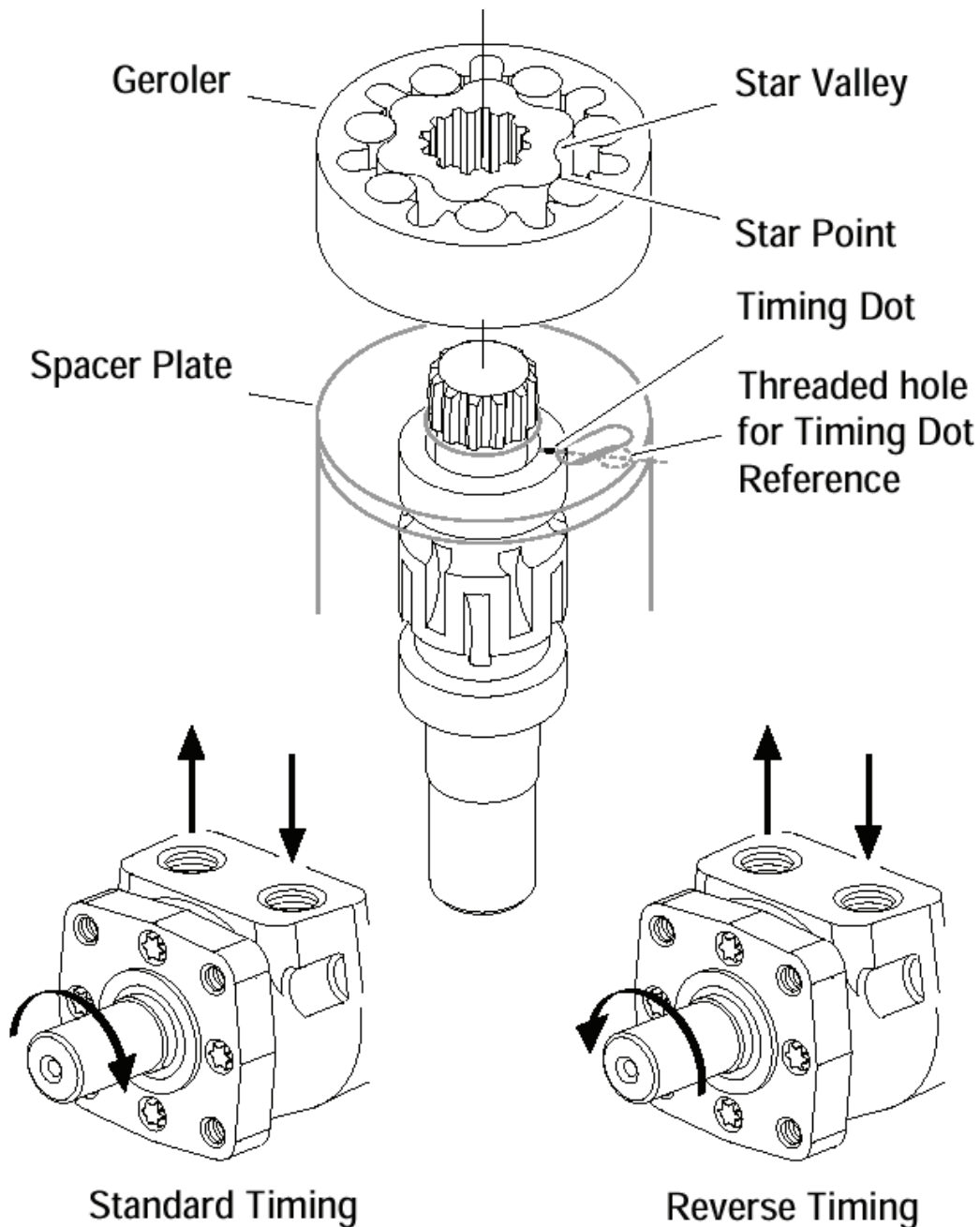


Figure 6

HYDRAULIC SYSTEM

TABLE OF CONTENTS SND SERIES - FT4

SECTION J	PAGE
Function	J-1
Troubleshooter's Guide	J-1
Hydraulic System Assembly Dual Gutter Broom w/Tilt Drawing	J-4
Hydraulic System Assembly Dual Gutter Broom w/Tilt Parts List	J-5
Service & Maintenance	J-8
Control Valve Assembly Drawing and Parts List	J-9
Electric Solenoid Valve Disassembly & Assembly	J-10
Hydraulic Pump Assembly Drawing (V10F).	J-12
Hydraulic Pump Assembly Parts List	J-13
Hydraulic Pump Disassembly & Assembly	J-14
Hydraulic Reservoir Assembly and Parts List.	J-16
Auxiliary Hydraulic System Drawing	J-17
Auxiliary Hydraulic System Parts List.	J-18
Auxiliary Hydraulic System Wiring Schematic	J-20
Hydraulic Oil Specification	J-21
Hydraulic Oil Filter Requirements and Specifications.	J-22
Pick-Up Head Hydraulic Cylinder Subassembly Drawing and Parts List	J-23
Dump Door Hydraulic Cylinder Subassembly Drawing and Parts List	J-24
Hopper Dump Hydraulic Cylinder Subassembly Drawing and Parts List	J-25
Hydraulic Cylinder Disassembly/Reassembly	J-26

FUNCTION

The Model DST-4 Hydraulic Pump constantly circulates hydraulic oil through the system while the auxiliary engine is in operation, thus supplying controlled flow and pressure upon demand. When a hydraulic component control switch is activated, it transmits a signal to the control valve to divert hydraulic energy to the selected work station.

NOTE: The hydraulic system reservoir capacity is 12.5 gallons and requires ISO 46 grade hydraulic oil (See end of section for oil spec).

TROUBLESHOOTER'S GUIDE

PROBLEM	CAUSE	SOLUTION
Extreme heat; unusual noise from pump; poor pump performance	Clogged lines; filter	Remove filter and check for clogging. Check lines.
	Dirty hydraulic oil	Drain oil reservoir and flush. Replace oil and filter.
	Low oil level	Check reservoir; fill as needed.
	Worn hydraulic pump	Replace
	Lose belt	Tighten

J

TROUBLESHOOTER'S GUIDE

(continued)

PROBLEM	CAUSE	SOLUTION
Hopper will not raise	Control valve coil not energizing	Check hydraulic system fuse; check wiring to see that it is attached to control valve coil. use test light to see if wire is getting electrical current; manually shift control valve by pressing in override buttons provided on end of tube assemblies. If valve will not manually shift, replace valve segment. Refer to valve Drawing M01021.
	Bad coil in control valve bank	If hopper raises when control valve is manually shifted (auxiliary engine will be running) remove coil from another control valve; insert in place of suspected bad coil. If valve operates, replace bad coil. If valve fails to operate, disassemble and check for foreign material.
	Low hydraulic system pressure	If hopper does not raise when manual overrides are depressed, install pressure test gauge on test port at pump. Refer to Page I-6. Test system pressure by lowering pickup head to ground; after it is fully lowered, continue to hold toggle switch in DOWN position and read pressure gauge. Reading should be 1500 PSI (103.5 Bar). If less, increase system pressure. If pressure reading is 1500 PSI (103.5 Bar), try to raise hopper and observe reading; if 1500 PSI (103.5 Bar), hopper is overloaded.
	Blocked hydraulic line in one or both lift cylinders	If hopper is not overloaded, then hydraulic lines to lift cylinders may be plugged; check for foreign material in lines.
	Cylinder seal leak	Check cylinder for internally ruptured seals. Remove cylinder from sweeper and disassemble. Refer to section pertaining to particular cylinder in question.

TROUBLESHOOTER'S GUIDE
(continued)

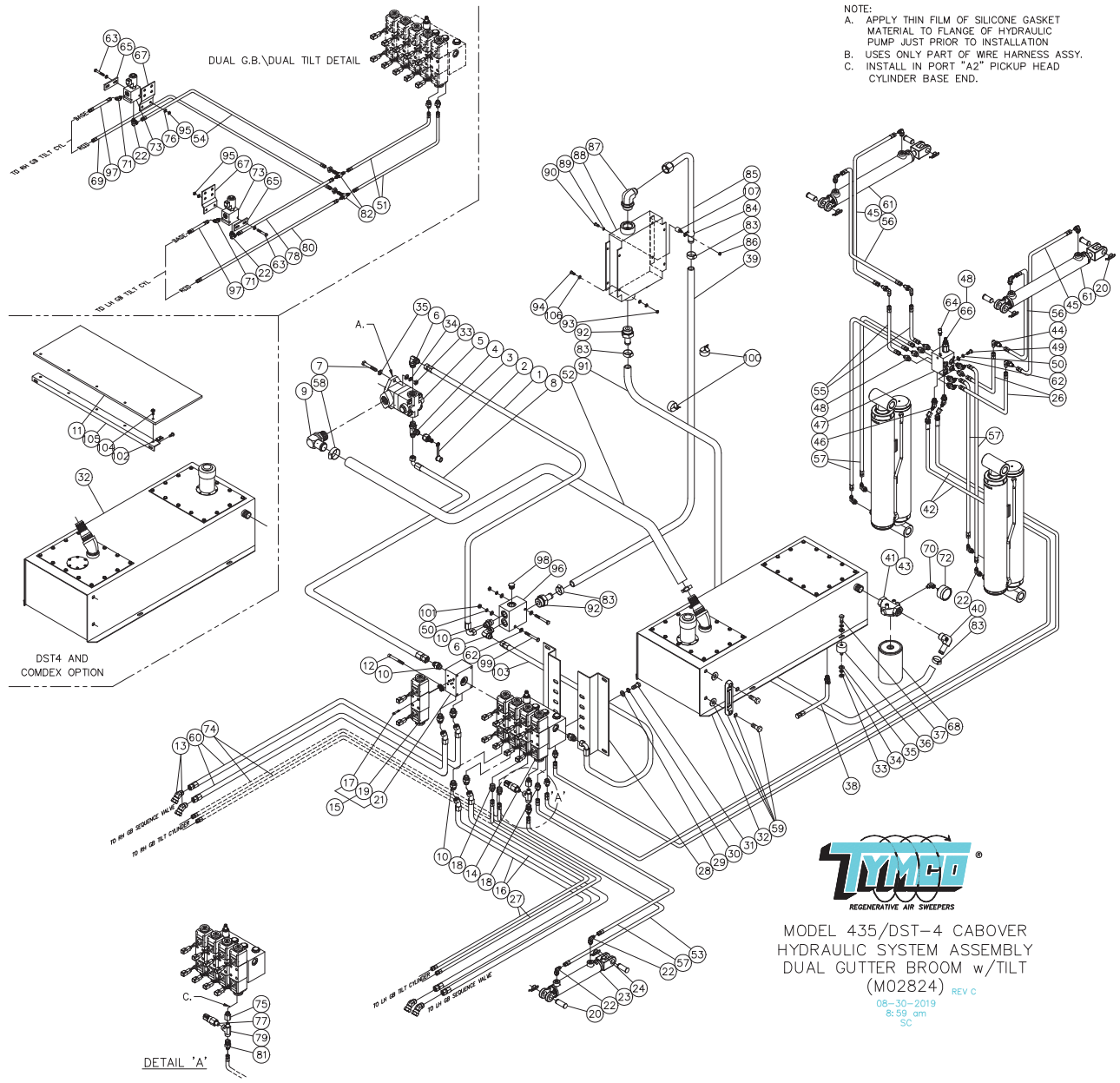
PROBLEM	CAUSE	SOLUTION
Dump hatch will not open but hopper raises	Dump hatch seal stuck to opening	Raise hopper until travel is stopped and continue to hold toggle switch in UP position. Dump hatch should open due to increase in system pressure. If not, have assistant pry door open.

 **WARNINGS:**

Never work under or around Model DST-4 hopper without first *shifting safety prop under its socket and securing in position with pin.*

Never check for hydraulic leaks using bare hand as pressure in system could cause oil to be injected into the skin; thus causing serious injury.

Do not work on or around sweeper when auxiliary engine is running. Use caution when performing troubleshooting tests that require auxiliary engine to be running.



MODEL 435/DST-4 CABOVER
 HYDRAULIC SYSTEM ASSEMBLY
 DUAL GUTTER BROOM w/TILT
 (M02824)

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 8:59 am
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**TYMCO MODEL 435/DST-4 - CABOVER
HYDRAULIC SYSTEM - DUAL GUTTER BROOM w/TILT PARTS LIST
DWG-M02824**

ITEM	QTY.	PART NO.	DESCRIPTION
	1	508359	Hydraulic System Dual Gutter Brooms w/Tilt - FT4
1	1	503171	Hose Assembly - 1/2 Hyd x 25"
2	1	12395	Rubber Cover - Test Port
3	1	12393	Test Port 1/2 JIC Female Swivel
4	1	20708	Fitting - 1/2 JIC x 1/2 Boss Run Tee
5	1	505832	Hydraulic Pump - Direct Drive (Kubota)
6	2	20711	Fitting - 1/2 Boss x 1/2 JIC 90°
7	2	40181	Bolt - 3/8-16 x 4-1/2 HHCS
8	1	800613	Hose Assembly - 1/2 Hyd x 39"
9	1	40701	Fitting - 1-1/4 HB x 1 Boss 90°
10	5	10786	Fitting - 1/2 Boss x 1/2 JIC Straight
11	1	5018387	Separator Dust Shield (Comdex Only)
12	4	12516	Bolt - 5/16-18 x 2-3/4 SHCS
13	2	20706	Fitting - 1/2 JIC Swivel x 1/2 JIC 45°
14	1	506603	Control Valve Assembly - 4 Valve
15	1	504721	Add-On Valve Section
16	2	506026	Hose Assembly - 1/2 Hydraulic x 66" (150" WB)
-	2	501776	Hose Assembly - 1/2 Hydraulic x 53" (135" WB)
17	2	12498	Vickers Bolt Kit
18	4	20742	Fitting - 3/8 Boss x 1/4 JIC Straight
19	2	504622	Vickers Control Valve
20	6	10405	Clevis Pin
21	2	503312	Add-On Manifold Block
22	10	20782	Fitting - 1/4 Boss x 1/4 JIC 90°
23	1	503364	Cylinder - Pick-Up Head
24	6	10434	Rue Ring Locking Cotter Pin
25	-	-	-
26	2	500079	Hose Assembly - 1/4 Hydraulic x 25"
27	2	500078	Hose Assembly - 1/4 Hydraulic x 97" (150" WB)
-	2	500874	Hose Assembly - 1/4 Hydraulic x 84" (135" WB)
28	2	5017940	Mount Bracket - Hydraulic Valve Bank
29	2	10309	7/16" Flat Washer
30	2	10310	7/16" Lock Washer
31	2	10135	Bolt - 7/16-14 x 1 HHCS
32	1	505491	Hydraulic Reservoir Assembly
-	1	505703	Hydraulic Reservoir Assembly (Comdex)
33	6	10209	Nut - 3/8-16 Hex
34	10	10308	3/8" Lock Washer
35	12	10307	3/8" Flat Washer
36	4	10588	Rubber Isolator - Mount
37	4	10127	Bolt - 3/8-16 x 3/4 HHCS
38	1	500378	Oil Drain Hose - 1/2 Hydraulic x 32"
39	1	5021940	Hose - 3/4 x 66" 801-12
40	1	13444	Fitting - 3/4 MPT x 3/4 HB 90°
41	1	12710	Head - Filter
42	2	506721	Hose Assembly - 1/4 Hydraulic x 145"
43	2	505148	Cylinder - Piggy Back
44	4	10751	Fitting - 1/4 JIC Bulk Head 90°
45	2	503769	Hose Assembly - 1/4 Hydraulic x 100"
46	5	10732	Fitting - 3/8 Boss x 1/4 JIC 45°

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ITEM	QTY.	PART NO.	DESCRIPTION
47	1	506878	Relief Manifold w/Relief
48	5	20742	Fitting - 3/8 Boss x 1/4 JIC Straight
49	2	20112	Bolt - 5/16-18 x 3/4 HHCS
50	4	10306	5/16" Lock Washer
51	-	-	-
52	1	5020306	Hose - 1-1/4 Suction x 36"
53	1	501318	Hose Assembly - 1/4 Hydraulic x 42" w/Loom
54	-	-	-
55	2	505363	Hose Assembly - 1/4 Hydraulic x 16" w/o Loom
56	2	506544	Hose Assembly - 1/4 Hydraulic x 118"
57	5	500212	Hose Assembly - 1/4 Hydraulic x 34"
58	2	11376	Hi Torque Hose Clamp - 1-1/4 x 2-1/8
59	1	12356 (5015086)	Sight Gauge (Seal Kit)
60	2	505554	Hose Assembly - 1/2 Hydraulic x 100" (150" WB)
-	2	502865	Hose Assembly - 1/2 Hydraulic x 88" (135" WB)
61	2	503362	Hydraulic Cylinder - Dump Door
62	2	10305	5/16" Flat Washer
63	-	-	-
64	1	12041	Air Vent Fitting
65	-	-	-
66	1	22372	Sequence Valve
67	-	-	-
68	1	5010080	Filter - Element
69	-	-	-
70	1	10733	Fitting - 1/8 MPT x 1/8 FPT 90°
71	-	-	-
72	1	12711	Gauge - Hydraulic Restriction Indicator
73	-	-	-
74	2	506023	Hose Assembly - 1/4 Hydraulic x 141" (150" WB)
-	2	800107	Hose Assembly - 1/4 Hydraulic x 129" (135" WB)
75	1	10710	Fitting - 1/4 NPT - 3/8 Boss Str.
76	-	-	-
77	1	507100	Hydraulic Pressure Switch
78	-	-	-
79	1	20730	Fitting - 1/4 Male Run Tee
80	-	-	-
81	1	10737	Fitting - 1/4 NPT - 1/4 JIC Straight
82	-	-	-
83	4	11318	Hose Clamp - 5/8 - 1-1/4
84	1	11331	Dipped Clamp - 3/4 DIA
85	1	509030	Hydraulic Tube
86	2	10274	Nut - 1/4 KEP
87	1	40749	Fitting - 1" ORB x 3/4 JIC 90°
88	1	13441	Oil Cooler
89	1	10304	Lock Washer - 1/4
90	1	20159	Bolt - 1/4-20 x 1/2 HHCS
91	1	5021941	Hose - 3/4 x 113" 801-12
92	2	13442	Fitting - 1" ORB x 3/4 HB Str.
93	4	10246	Lock Nut - 1/4"
94	4	10111	Bolt - 1/4 UNC x 1 HHCS G5
95	1	505856	Return Manifold
97	-	-	-
98	1	30753	Fitting - 1/2" ORB Plug
99	2	10122	Bolt - 5/16 UNC x 3 HHCS
100	2	11362	Heavy Duty Dipped Clamp 1-1/8"

ITEM	QTY.	PART NO.	DESCRIPTION
101	2	10205	Nut - 5/16 Hex
102	5	10224	Speed Nut (Comdex Only)
103	1	505995	Hose - 1/2 x 45" Hydraulic
104	7	30104	Bolt - 1/4-20 x 3/4 HWH Rollock (Comdex Only)
105	1	5018388	Clamp - Dust Shield (Comdex Only)
106	1	10303	1/4 - Flat Washer
107	1	10586	1/4" Sandwich Mount Rubber Isolator
Not Shown	1	508944	Wire Harness - 435 Dump Switch w/o Aux. Hyd.
Not Shown	1	508286	Wire Harness - 435 VMM J1 - FT4
Not Shown	1	508287	Wire Harness - 435 VMM Plug J2 - FT4
Not Shown-		M02740	Hydraulic Schematic - 435 FT4

DUAL GUTTER BROOM W/DUAL TILT OPTION

10	2	10786	Fitting -+ 1/2 Boss - 1/2 JIC Str.
22	2	20782	Fitting - 1/4 Boss x 1/4 JIC 90°
51	2	800509	Hose Assembly - 1/4 Hydraulic x 16"
54	1	504980	Hose Assembly - 1/4 Hydraulic x 90" (150" WB)
-	1	501320	Hose Assembly - 1/4 Hydraulic x 75" (132" WB)
63	4	20110	Bolt - 1/4-20 x 2 HHCS
65	2	5013918	Valve Mount Plate
67	2	5017328	Mount - Bidirectional Valve
69	1	507160	Hose Assembly - 1/4 Hydraulic x 112" (150" WB)
-	1	500078	Hose Assembly - 1/4 Hydraulic x 97" (132" WB)
71	2	30731	Fitting - 1/4 JIC x 1/4 Boss 45°
73	2	505731	Bidirectional Lock Valve
76	8	10303	1/4" Flat Washer
78	1	800239	Hose Assembly - 1/4 Hydraulic x 48" (150" WB)
-	1	500212	Hose Assembly - 1/4 Hydraulic x 34" (132" WB)
80	1	507591	Hose Assembly - 1/4 Hydraulic x 85" (150" WB)
-	1	501207	Hose Assembly - 1/4 Hydraulic x 66" (132" WB)
82	2	10713	Fitting - JIC Bulkhead Tee
95	4	10246	Nut - 1/4-20 Top Lock
97	2	502574	Hose Assembly - 1/4" x 20"

J

SERVICE & MAINTENANCE



WARNING: Before servicing, stop auxiliary engine and remove ignition key or disconnect negative battery cable.

HYDRAULIC SYSTEM ADJUSTMENTS

Dual Gutter Broom Option - Refer to Hydraulic System Drawing M02824 and control valve assembly drawing M01866. In order to check or set the pressures required, which is 2500 PSI (172.5 Bar) for the primary pressure (Gutter Brooms) and 1500 PSI (103.5 Bar) for the secondary pressure (Pickup Head and Dump), a gauge with a pressure range of 0 to 3000 PSI (0 to 207 Bar) is necessary. See section TK of this manual for part number of correct test gauge. With auxiliary engine off, install test gauge on male quick disconnect test port.

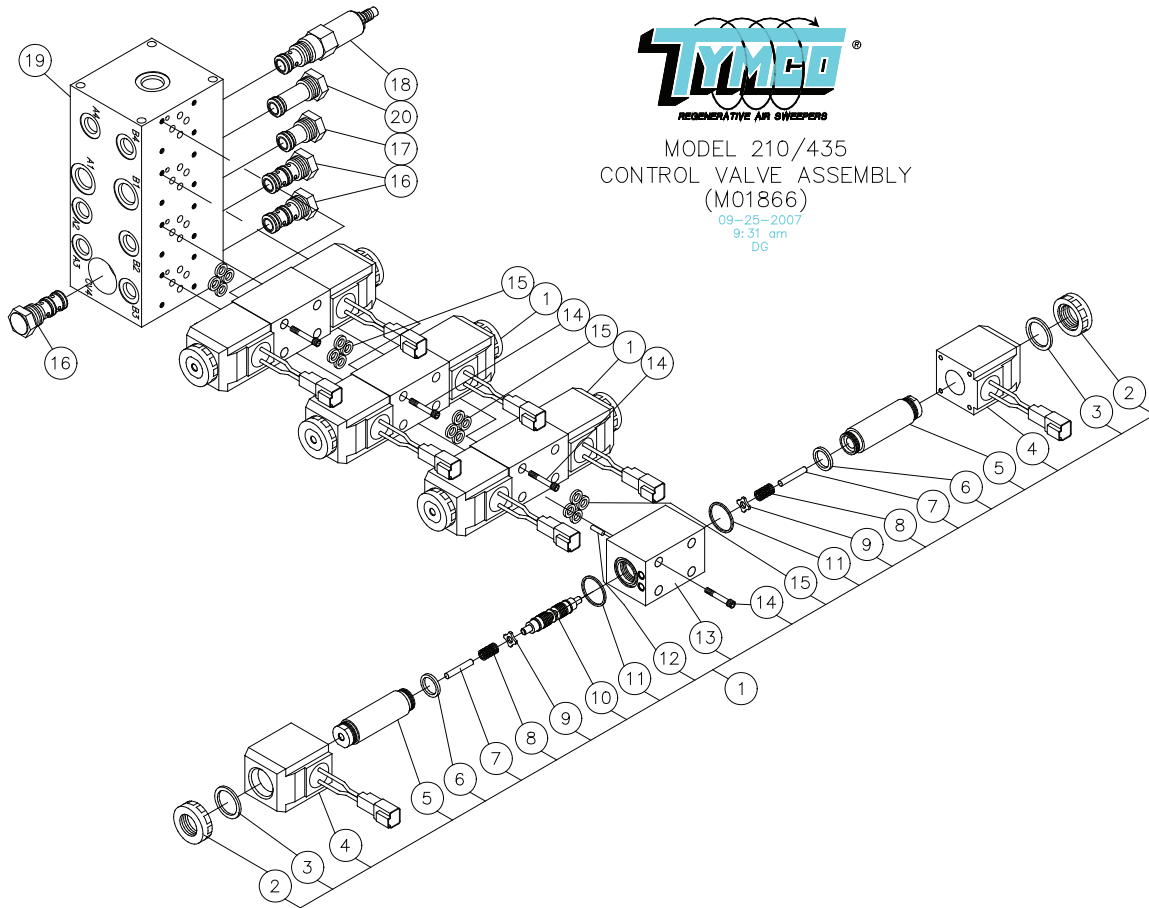
NOTE: All pressure testing should be done with hydraulic oil at operating temperature. Start auxiliary engine and raise either gutter broom. Hold switch to “raise” position after gutter broom has completed its travel and read primary pressure which should be 2500 PSI (172.5 Bar).

NOTE: The primary pressure reading is direct from the pump and is not adjustable within the sweeper system.

To test the secondary pressure, leave test gauge in the same position and with the auxiliary engine running, lower the hopper to its full travel, hold the switch to the “Lower” position and read the test gauge, 1500 PSI (103.5 Bar) should be the pressure reading. If adjustment is required, loosen jam nut on relief valve (Item 18-DWG M01866) and turn setting clockwise to raise pressure and counterclockwise to lower pressure and tighten jam nut.

Standard L.H. Gutter Broom - When sweeper is equipped with a single gutter broom, all functions are operated at 1500 PSI (103.5 Bar) and set as described in the secondary pressure setting method noted above.

Hydraulic Oil Reservoir - The hydraulic oil reservoir has an operating capacity of 12.5 gallons (47.3 L) and its level should be checked DAILY prior to sweeping operations by observing the sight gauge located on the left side of the reservoir. The reservoir and the system filter are positioned beneath the dust separator assembly. The hydraulic system motor oil should be changed after 2000 hours or as needed according to oil analysis. The system filter should be changed every 1000 hours of use.



MODEL 210/435
 CONTROL VALVE ASSEMBLY
 (M01866)
 09-25-2007
 9:31 am
 DG

**CONTROL VALVE ASSEMBLY PARTS LIST
 DWG-M01866**


ITEM	QTY	PART NO.	DESCRIPTION
	1	506603	4-Valve Control Valve Assembly
1	3	504622	Four-Way Series Valve Assembly
2	6	12483	Knob
3	6	12485	Solenoid O-Ring (Top)
4	6	504459	Solenoid - 12 V DC
5	6	12484	Core Tube Assembly
6	6	12488	Core Tube O-Ring
7	6	(Comes w/12484)	Push Rod
8	6		Centering Spring
9	6		Centering Washer
10	3		Spool (Must be ordered with Block)
11	6	12487	Solenoid O-Ring (Bottom)
12	3	12490	Line Up Pin
13	3	12493	Spool/Body Assembly (Includes Spool)
14	3	12498	(4) Valve Bolts
15	3	12489	(4) Valve Port O-Rings
16	3	503014	Check Valve
*		12495	O-Ring Kit For 503014 Check Valve
17	1	30768 (503013)	Cavity Plug - Short (Dual Broom / No Tilt Only)
18	1	503013 (30768)	Relief Valve (Dual Broom / No Tilt Only)
*		12913	O-Ring Kit for 503013 Relief Valve
19	1		Manifold Assembly
20	4	30767	Cavity Plug - Long

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SOLENOID VALVE

The hydraulic control valve bank assembly is located on the front of the dust separator assembly just above the hydraulic reservoir. Raise the gullwing door to access this area. Before beginning disassembly, prepare an oil bath of clean oil to receive parts requiring high cleanliness level. Refer to drawing M01866.

NOTE: Due to its unique manifold/modular design, it is not necessary to remove the entire valve assembly from the sweeper to perform most repairs, nor is there a need to disconnect hydraulic hoses. However, a high degree of cleanliness must be maintained during any modular component removal and/or repair.

 **CAUTION:** Thoroughly clean all dirt, dust, grease, or other possible contaminants from the valve assembly.

DISASSEMBLE: (Refer to Drawings M01866 and M01150)

 **WARNING:** Before servicing, stop auxiliary engine and remove ignition key or disconnect negative battery cable. When working under or around raised hopper, *ALWAYS install pin against safety prop.*

1. Disconnect electrical connector from the control valve to be repaired.
2. Remove the attaching socket head fasteners (14) and detach control valve (1) from the manifold (19).
3. Remove coil knobs (2) and slide coil gaskets (3) and coils (4) off the tube assemblies (5).
4. Using an open end wrench on the flat surfaces at the top of the tube assemblies, carefully remove them from the valve block (13).

NOTE: Tube walls are constructed of light material; avoid bending, denting or otherwise distorting tube which would restrict free movement of armature located inside.

5. Carefully slide spool (10) from block (13).

 **CAUTION:** Handle spool with extreme care. Damage to its surface will prevent it from functioning properly.

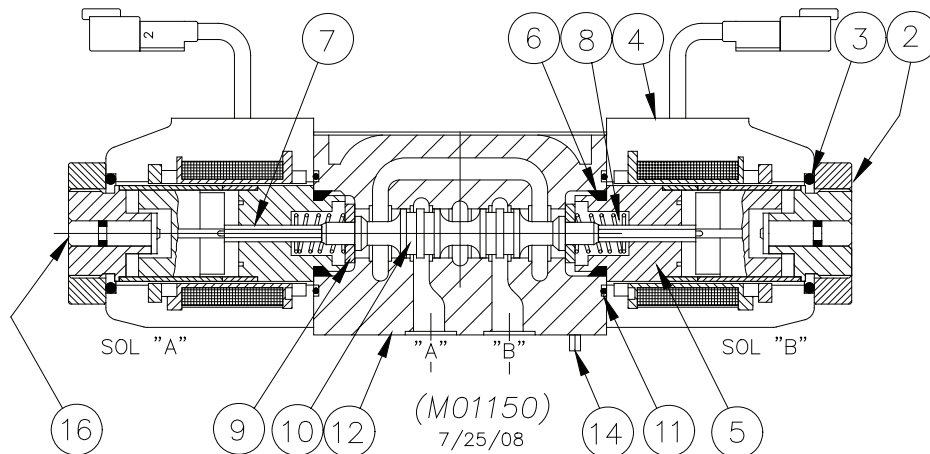
6. Valve block and spool are a matched set; if either is damaged, both must be replaced.
7. Discard O-rings (6) removed during disassembly.
8. Place all sub-assemblies in oil bath with the exception of the coil (4).
9. Inspect all parts for damage and replace as required.
10. Submerge new parts in oil bath.

TO ASSEMBLE: (Refer to Drawings M01866 and M01150)

1. After making sure all parts are clean and oiled, carefully install spool (10) in block (13). Spool should slide freely into valve block. If it does not, check for burrs; remove burrs, if any, with a stiff wire brush.
2. Install tube assemblies (5) in valve block and hand tighten

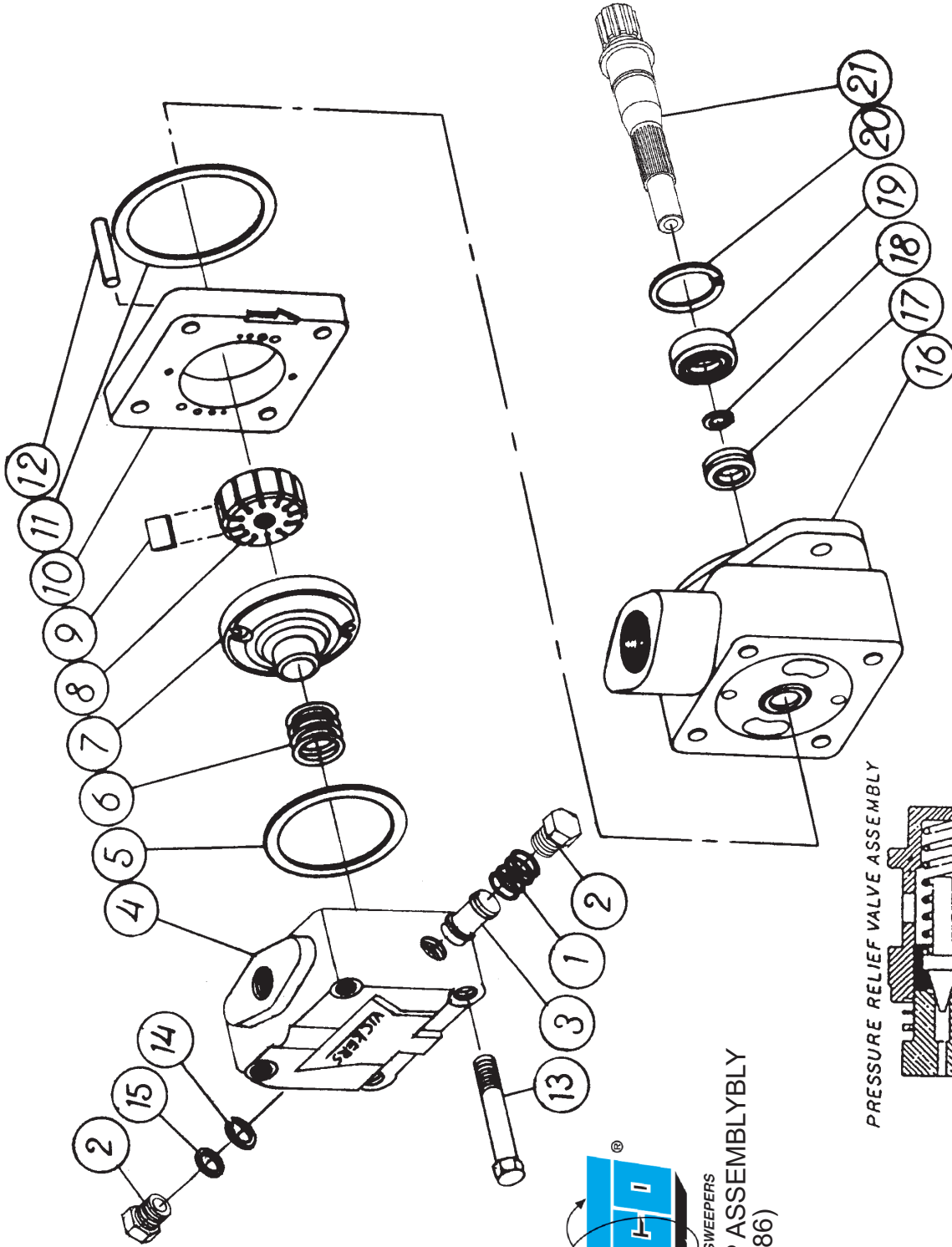
⚠ CAUTION: Handle spool with extreme care. Contamination or damage to surface of the spool will prevent it from functioning properly.

3. Torque tube assemblies to 22-27 ft./lbs. (30-36 Nm)
4. Coat O-rings (15) with light film of compatible grease and place them in machined recesses of components to be installed.
5. Install valve assembly (1) on manifold (19) using applicable attaching socket head fasteners. Torque attaching fasteners to 40-50 ft./lbs. (54-58 Nm)
6. Slide coil gaskets (3 & 11) and coils (4) onto tube assemblies and thread knobs (2) on hand tight (approximately 25 in./lbs. (2.5-3.0 Nm))
7. Connect electrical connectors to appropriate receptacles and functionally test the system.



**TYMCO MODEL 435
VALVE ASSEMBLY - CROSS SECTION PARTS LIST
DWG-M01150**

ITEM	QTY.	PART NO.	DESCRIPTION
	1	504622	Four-Way Series Valve Assembly
2	1	12483	Nut
3	2	12485	Top O-Ring - Coil
4	2	504459	12V D.C. Coil
5	2		Tube Assembly
6	2	12488	O-Ring - Tube Assembly
7	2		Pin
8	2	12526	Centering Spring
9	2	12492	DC Washer
10	1	12527	#8C Spool
11	2	12487	Bottom O-Ring Coil
12	1		Block
13	1	12498	(4) Bolt Kit (Not Shown)
14	1	12490	Locating Pin
15	1	12489	(4) Valve Port O-Rings (Not Shown)
16	2	12530	Manual Override (Indicated For Reference Only)



TIME
 REGENERATIVE AIR SWEEPERS
 HYDRAULIC PUMP ASSEMBLY
 (M00986)

**TYMCO MODEL 435/DST-4
HYDRAULIC PUMP ASSEMBLY PARTS LIST
DWG-M00986**

ITEM	QTY.	PART NO.	DESCRIPTION
	1	505832	Hydraulic Pump Assembly V10F - 3-5-2500
1	1		Spring - Control Valve
2	2		Plug
3	1		Control Valve - Relief Valve
4	1		Cover
5**	1		O-Ring
6	1		Spring Pressure Plate
7	1		Pressure Plate
8*	1		Rotor
9*	12		Vane
10*	1		Ring
11**	1		O-Ring
12	2		Pin
13	4		Screw (Tighten to 40 +/- 5 FT/LBS)
14	1		Snap Ring
15**	2		O-Ring
16	1		Body
17	1		Seal
18	1		Snap Ring - Small
19	1		Bearing
20	1		Snap Ring - Large
21	1		Shaft

** 5010911 Seal Kit (Special Order Only - not stocked by TYMCO)
 * 12668 Cartridge Kit (Special Order Only - not stocked by TYMCO)

NOTE: Before removing pump from sweeper unit, plug or cap all openings on pump and hoses to prevent any entry of debris into the system.

During disassembly, pay particular attention to identification of parts, especially the cartridges for correct assembly. The pump bearings are pressed in the body and on the shaft and should not be removed unless defective. Hydraulic Pump Assembly Drawing M00986 is an exploded view which shows the proper relationship of the parts for disassembly and assembly.

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WARNING: Before servicing, stop auxiliary engine and remove ignition key or disconnect negative battery cable.

TO DISASSEMBLE:

1. Clamp the pump body in a vise (not too tightly) with cover (4) end up, and remove the four cover bolts (13). Note the position of the cover port with respect to the body (16) port before lifting off the cover and O-ring (5). See Step 4 for disassembly of flow control cover (4).
2. Remove pressure plate (7) and spring (6). Note the position of the ring (10) for correct reassembly. Lift off ring and remove locating pins (12). Separate vanes (9) from rotor (8) and remove the rotor from the shaft.
3. Turn pump body (16) over, then remove the snap ring (20) which retains bearing (19). Tap with a soft hammer on the small splined end of the shaft (21) to force the shaft out of the body. Remove the small snap ring (18) located on the shaft behind the bearing. Support the bearing inner race and press the shaft out of the bearing. Pull shaft seal (17) out of the body with a suitable tool.
4. Remove Plug (2) from the snap ring (14) side of cover. Then remove plug (2) that releases the spring (1) and valve (3). Insert a suitable tool from snap ring end of the bore. Slide the relief valve sub-assembly from cover and remove snap ring from cover.

INSPECTION AND REPAIR:

All parts must be thoroughly cleaned and kept clean during inspection and assembly. Close tolerance of parts make this requirement more stringent than usual. Clean all removed parts using a commercial solvent that is compatible with the systems fluid. Compressed air may be used in cleaning, but it must be filtered to remove water and contamination. Clean compressed air is particularly useful in cleaning spools, orifices, etc.

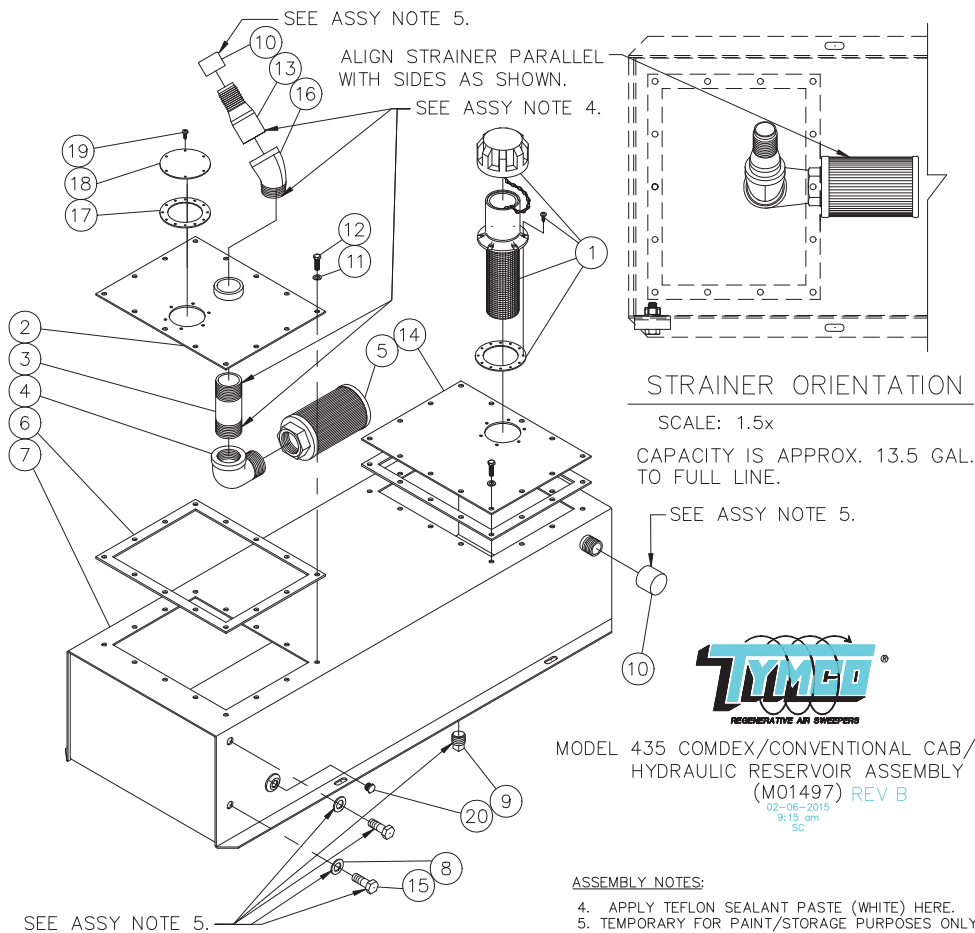
1. Discard shaft seal (17) and all O-rings. Wash the metal parts in a solvent; blow dry, and place on clean surface for inspection.
2. Check wearing surfaces of body (16), pressure plate (7), ring (10) for scarring and excessive wear. Remove light scar marks by lapping. Replace any heavily scarred or badly worn parts.
3. Inspect vanes (9) for burrs, wear and excessive play in rotor slots. Replace the vanes and rotor if slots are worn.
4. Check bearing (19) for wear and looseness. Rotate the bearing while applying pressure to check for pitted or cracked places.
5. Inspect the oil seal (17) mating surface on the shaft for scarring or wear. If marks on shaft cannot be removed by light polishing, replace shaft.

TO ASSEMBLE:

Coat all parts with hydraulic fluid to facilitate assembly and provide initial lubrication. Use small amounts of petroleum jelly to hold O-rings in place during assembly.

IMPORTANT: During the handling of the precision machined cartridge parts, it is possible to raise burrs on the sharp edges. All sharp edges on parts of the new cartridge kits should be stoned prior to installation.

1. Check relief valve sub-assembly (3) for free movement in the cover bore. Remove burrs from the valve by polishing, but do NOT round off the corners of the lands. Do not attempt to rework the valve bore. If valve bore is damaged, replace cover (4).
2. Assembly of flow control cover (4): Assemble snap ring (4) in place within the bore (seat firmly in groove). Insert valve (3) in the bore, small land first. Then install the spring (1) and both plugs (2).
3. Assembly of the pump: Begin assembly by pressing shaft (21) into the front bearing (19) while supporting the bearing inner race. Install the small snap ring (18) on the shaft.
4. Before assembling the shaft seal (17), determine the correct position of the seal lip. Seal must be assembled with garter spring toward pump cartridge. Press the seal firmly in place and lubricate lip with petroleum jelly or other grease compatible with the systems fluid. Slide the drive shaft (21) into the body (16) until bearing is seated. Tap lightly on end of shaft if necessary. Install snap ring (20).
5. Install new O-rings in the body and cover. Insert ring locating pins (12) in body (16) and assemble ring (10) so that arrow on the perimeter points in the direction of rotation. Looking at the pump directly into the shaft end, arrows should be pointing in a clockwise direction on direct engine driven pumps. Install rotor (8) on shaft (21) and insert vanes (9) in the rotor slots. Be certain the radius edges of the vanes are toward the cam ring.
6. Place pressure plate (7) on the locating pins (12) flat against the ring (10). Place spring (6) over the pressure plate and install the cover (4) with the outlet port in correct position. Hand tighten cover bolts (13) and torque to 35-45 ft-lbs (47.5-61 Nm) for belt driven pumps. Rotate the shaft by hand to insure that there is no internal binding.



TYMCO MODEL 435 COMDEX/CONVENTIONAL CAB/DST-4 HYDRAULIC RESERVOIR ASSEMBLY PARTS LIST DWG-M01497

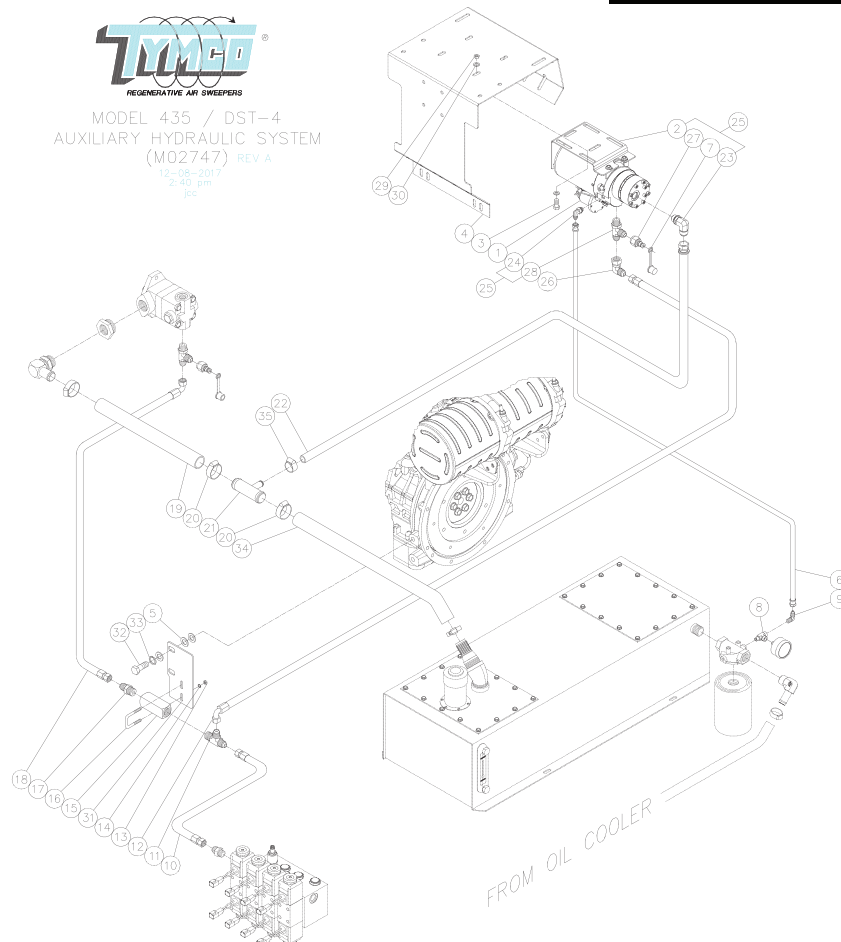
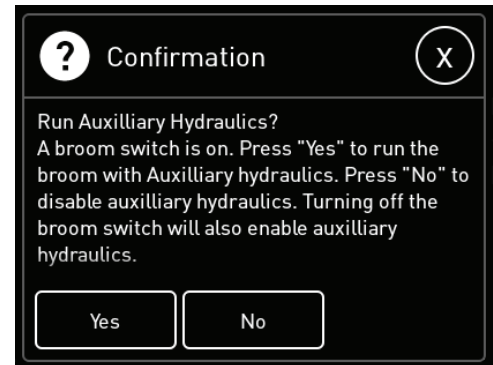
ITEM	QTY	PART NO.	DESCRIPTION
	1	505703	435 Comdex/Conv. Hydraulic Reservoir Assy.
1	1	12480	Hydraulic Filler Neck
2	1	505492	Lid Weldment
3	1	30668	Fitting - 1-1/4 NPT x 4 Nipple - Black
4	1	30669	Fitting - 1-1/4 NPT Street Elbow 90° Black
5	1	12939	Strainer
6	2	20559	Gasket
7	1	505490	Hydraulic Reservoir Weldment
8	For Paint Only	10311	1/2" Flat Washer
9	1	10635	Fitting - 1/2 NPT Plug Square Head Black
10	2	-	Vinyl Closure
11	28	10345	1/4" Neoprene Bond Washer
12	28	10111	Bolt - 1/4-20 x 1 HHCS
13	1	30670	Fitting - 1-1/4 NPT King Nipple
14	1	5018342	Fill Lid Plate
15	For Paint Only	10138	Bolt - 1/2-3 x 1 HHCS
16	1	40625	Fitting - 1 1/4 NPT Street Elbow 45° Blk.
17	1	13232	Gasket - Filler Neck/Cover
18	1	5021404	Cover Plate
19	6	10107	Screw - 10-24 x 1/2" PPH Roll
20	1	50722	

MODEL 435/DST-4 SND SERIES AUXILIARY HYDRAULIC SYSTEM KUBOTA T4F

FUNCTION

The Model 435/DST-4 auxiliary hydraulic system is an electrically powered hydraulic system that operates in parallel with the auxiliary engine powered hydraulic system. The BlueLogic™ control system monitors the status of the auxiliary engine and automatically engages the electric hydraulic pump if the engine is not running. To operate the system, the sweeper ignition key must be in the on position. Simply press the desired hydraulic function and the electric pump will engage to deliver hydraulic flow to the active function. An indicator on the display will turn green to indicate that the electric pump is active. When a gutter broom is activated, the pump will run for 4 seconds to lower the broom and then turn off. After the pump turns off, the gutter broom valve will remain active to allow manual rotation of the disc to assist with changing broom segments.

If a gutter broom switch is on when the sweeper ignition is turned on, a confirmation window will pop up on the console display. The auxiliary hydraulics motor will not run until the confirmation is acknowledged. To start the Auxiliary Hydraulics either confirm the message through the display or turn-off the gutter broom switch that is currently on.

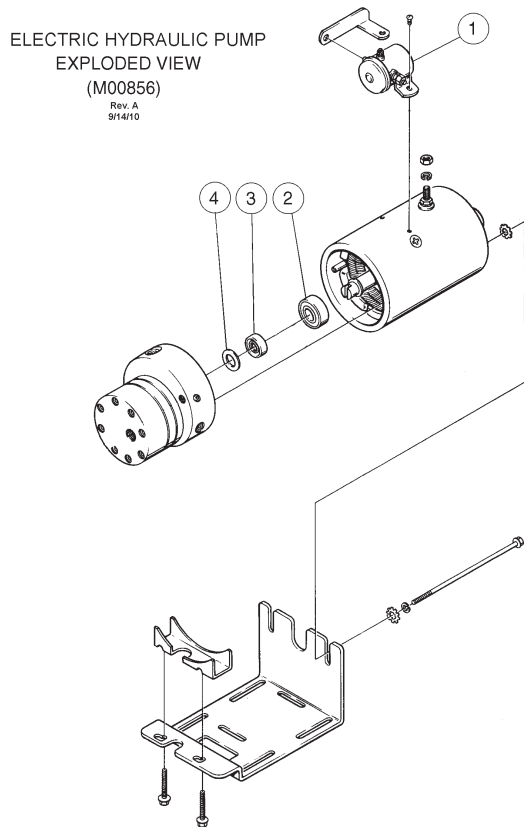


TYMCO
REGENERATIVE AIR SWEEPERS
MODEL 435 / DST-4
AUXILIARY HYDRAULIC SYSTEM
(M02747) REV A
12-08-2017
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**TYMCO MODEL 435/DST-4
KUBOTA T4F AUXILIARY HYDRAULIC SYSTEM PARTS LIST
DWG-M02747**

ITEM	QTY	PART NO	DESCRIPTION
	1	508351	Auxiliary Hydraulic System
1	1	5014893	Auxiliary Pump Solenoid
2	1	507132	Auxiliary Hydraulic Pump
3	4	20112	Bolt - 5/16-18 X 3/4 HHCS
4	(Shown for Clarity)	5021883	Air Cleaner Mount
5	6	10311	1/2" Flat Washer
6	1	502184	Hose Assembly - 1/4 x 66"
7	1	12395	Rubber Test Port Cover
8	1	10756	Fitting - 1/8 P x 1/4-37 x 90°
9	1	10721	Fitting - 1/8 NPT x 1/4 JIC 90°
10	1	505038	Hose Assembly - 1/2 Hyd x 23"
-	1	505908	Hose Assembly - 1/2 Hyd x 18" (Dual GB w/Tilt)
-	1	503147	Hose Assembly - 1/2 Hyd x 72" (Conv. Cab)
11	1	20734	Fitting - 1/2 NPT x 1/2 JIC Tee
12	1	800613	Hose Assembly - 1/2 x 39" Hydraulic
13	2	10203	Nut - 1/4-20 Hex
14	2	10304	1/4" Lock Washer
15	1	12326	1/2 NPT Check Valve
16	1	30154	Bolt - 1/4 Square U-Bend
17	1	20717	Fitting - 1/2 NPT x 1/2 JIC Straight
18	1	505906	Hose Assembly - 1/2 x 8" Hyd
19	1	5021285	Hose - 1 1/4 Suction x 30"
20	5	11376	Clamp Hi Torque - 1-1/4 x 2-1/8
21	1	506485	1-1/4 x 5/8 Hose Barb Tee
22	1	508352	Hose Assembly - 5/8 Hydraulic x 19"
23	1	50721	Fitting - 5/8 JIC x 1/2" Boss 90°
24	1	20782	Fitting - 1/4 JIC x 1/4" Boss 90° Elbow
25	1	507158	Electric Hydraulic Pump Assembly - w/Fittings
26	1	20768	Fitting - 1/2 Boss - 1/2 JIC 90°
27	1	12393	Test Port - 1/2 JIC Swivel
28	1	20708	Fitting- 1/2 JIC Tee x 1/2 Boss
29	4	10229	Nut - 5/16-18 Top Lock
30	8	10305	5/16" Flat Washer
31	1	5018614	Bracket - Check Valve Auxiliary Hydraulic
32	2	40173	Bolt - 14mm-1.5 x 30mm
33	2	10314	5/8" Lock Washer
34	1	5021284	Hose - 1 1/4" Suction x 6"
35	1	11322	Clamp - 9/16" - 1-1/16"
Not Shown	1	504379	Positive Battery Cable (Cabover)
Not Shown	1	505751	Positive Battery Cable (Conv. Cab)
Not Shown	1	508298	Ground Cable
Not Shown	1	508943	Wire Harness - Aux. Hyd. Dump Switch
Not Shown	1	12191	Switch - 6 Pole (Sealed)
Not Shown	-	508479	Schematic- Auxiliary Hydraulic Wiring



**ELECTRIC HYDRAULIC PUMP
PARTS LIST
DWG-M00856**

ITEM	QTY	PART NO	DESCRIPTION
	1	507132	Electric Hydraulic pump
1	1	5014893	Solenoid
2	1	11015	Bearing
3	1	12413	Seal
4	1	(Comes w/12413)	Gasket

ELECTRIC HYDRAULIC PUMP SERVICE

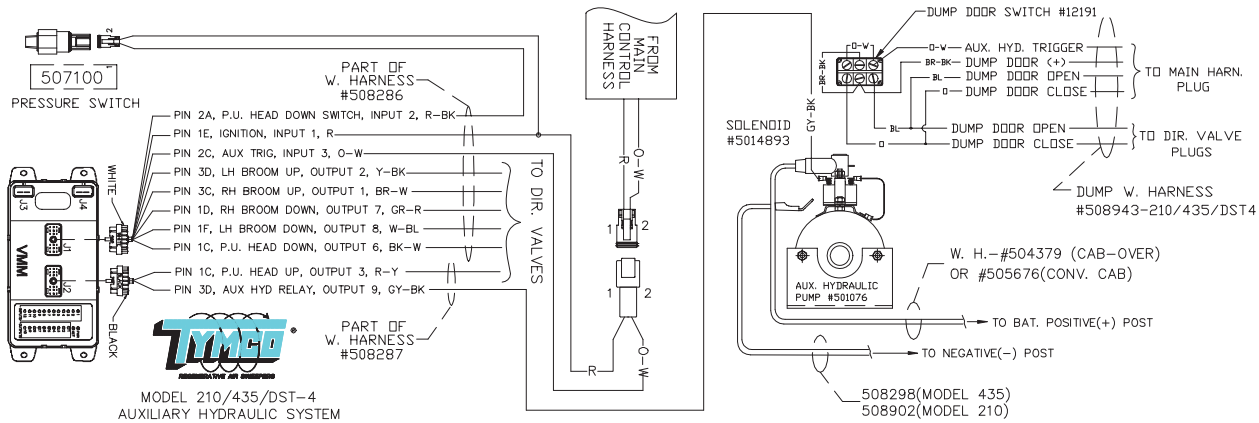
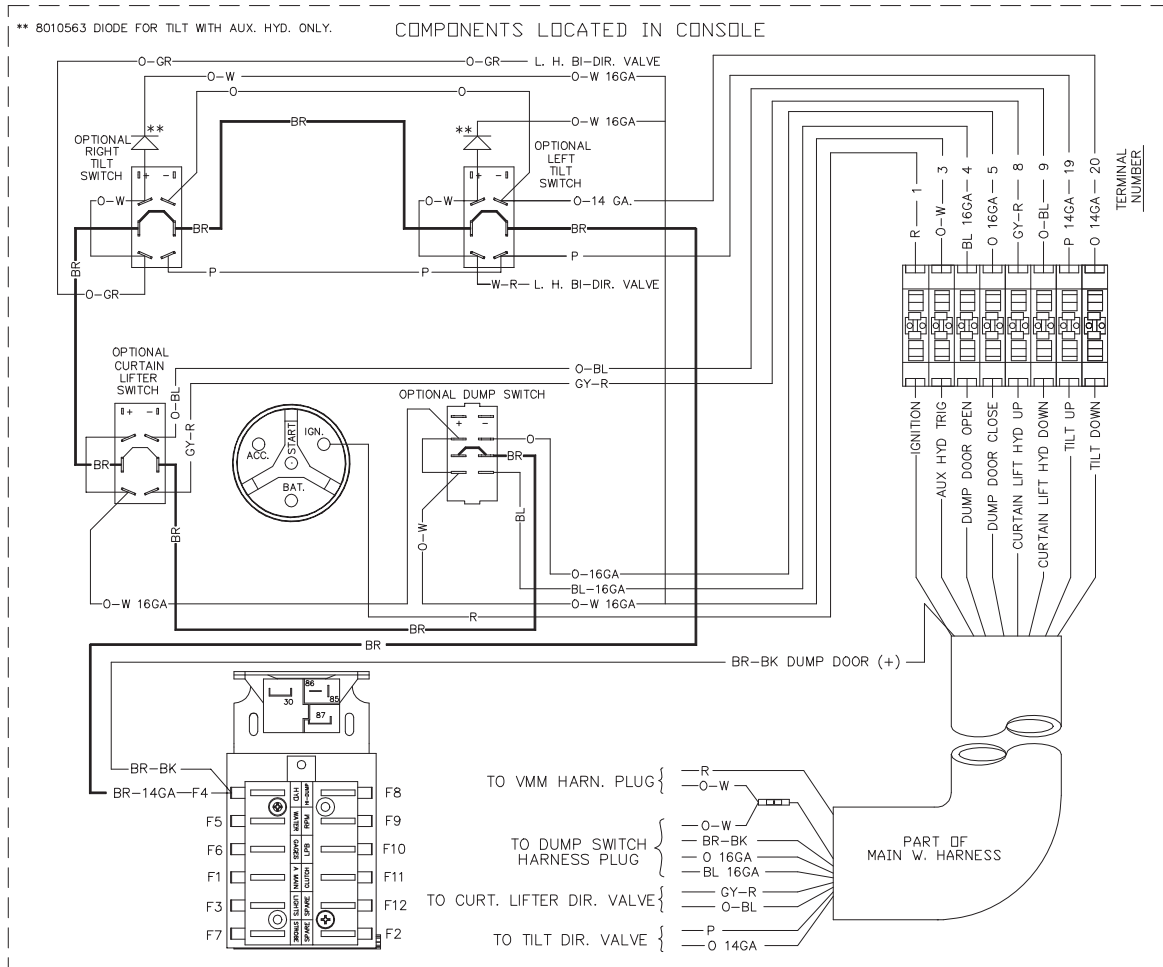
CAUTION: Thoroughly clean all dirt, dust, grease or other possible contaminants from the pump assembly.

DISASSEMBLE: (Refer to Drawing M00856)

WARNING: Before servicing, stop auxiliary engine and remove ignition key or disconnect negative battery cable.

NOTE: Make certain that the electric hydraulic pump is mounted horizontally to prevent premature failure of the pump radial bearings.

The electric hydraulic pump used in the hydraulic circuit requires little routine service. It is critical that the hydraulic filter and oil be changed at the posted intervals. Also, to prevent burning of the electric motor, observe operational rule of **1 minute on and 5 minutes off**.




MODEL 210/435/DST-4
 AUXILIARY HYDRAULIC SYSTEM
 WIRING SCHEMATIC - BLUELOGIC
 (M02743)
 8-24-2010
 8:24 am
 30
REV A

HYDRAULIC OIL SPECIFICATION

The standard hydraulic fluid used in all TYMCO sweepers is Mobil DTE 25 Ultra. This fluid is an ISO grade 46 hydraulic oil with anti-wear, anti-foaming, anti-corrosion, and demulsifying additives with a wide operating temperature range. This oil also provides long filter and oil service life.

TYMCO also recommends that customers periodically have a hydraulic oil analysis performed. The analysis provides important information about the health of the hydraulic system and oil. It can provide a warning of premature component wear, level of oil cleanliness, and oil performance. A proper oil analysis can potentially prevent changing the hydraulic oil that is still within specification and can extend the drain interval well beyond TYMCO's recommend hydraulic oil service interval. TYMCO recommends having the oil analyzed every 500 hours. Oil distributors will most likely be able to provide a suitable oil analysis solution.

 **WARNING: Some oils can degrade hydraulic components so ALWAYS consult the factory before switching hydraulic oils to prevent loss of warranty. Also, DO NOT mix oils because this could cause chemical and viscosity problems. DO NOT use Dextron II, Universal Tractor Fluids (UTF), or Transmission Differential Hydraulic Oil (TDH). Hydraulic component warranty will be lost if these hydraulic fluids are used.**

Hydraulic Oil Service Interval

When using Mobil DTE 25 Ultra, TYMCO recommends servicing the hydraulic oil **every 2000 hours or by oil analysis recommendation**. To maintain warranty on hydraulic components, oil service and/or oil analysis records will be required in the event of a hydraulic component failure. TYMCO also recommends cracking the reservoir drain plug open every 6 months or 500 hours to drain any water that may have accumulated in the hydraulic reservoir.

Hydraulic Oil Inspection

The hydraulic oil level and color should be checked daily. The hydraulic oil color should be a clear amber. The sight gauge located on the hydraulic reservoir can be used to check the oil level and color. A milky oil color indicates water contamination, and dark oil indicates over heating or a chemical reaction.

If the hydraulic oil reservoir is low, only fill the reservoir when the hopper is down in the stowed position. Never overfill the reservoir. See Hydraulic Oil Reservoir section. Stop filling reservoir at the full level line on the sight gauge. This will allow room for oil expansion when it increase to operating temperature. Always filter (10 micron absolute to maintain warranty) new oil that is being added to the reservoir especially if oil is taken out of a drum.

J

FILTER SERVICE REQUIREMENTS AND SPECIFICATIONS

NOTE: The oil and filter service requirements must be followed to maintain hydraulic parts warranty. See Hydraulic Oil Specification section for recommended oil usage.

There are two hydraulic filters in the hydraulic system. A return filter and a reservoir vent filter. Only recommended filters should be used so that the hydraulic components warranty is maintained. Keeping accurate service records is required for warranty purposes.

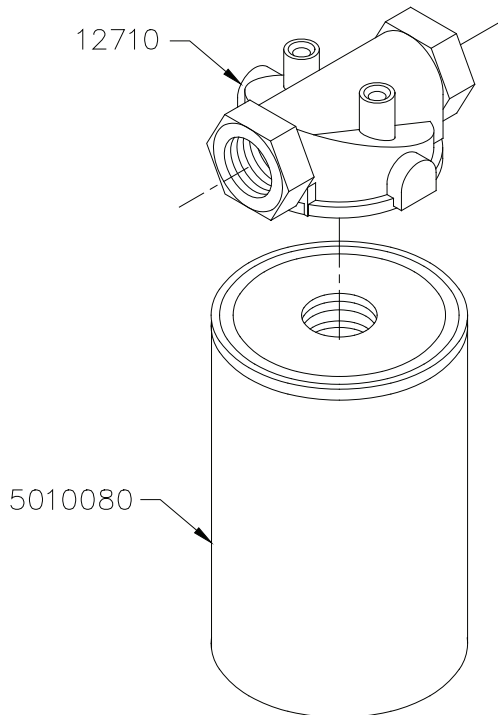
Recommended Return Filter Service (Screw-On Filter, P/N 5010080)

The return filter has a restriction indicator on it that should be checked daily. The hydraulic oil temperature should be above 100°F before checking restriction indicator. The Gutter brooms should be running when checking the restriction indicator gauge. The filter needs to be changed before the restriction indicator needle reaches the red region of the gauge.

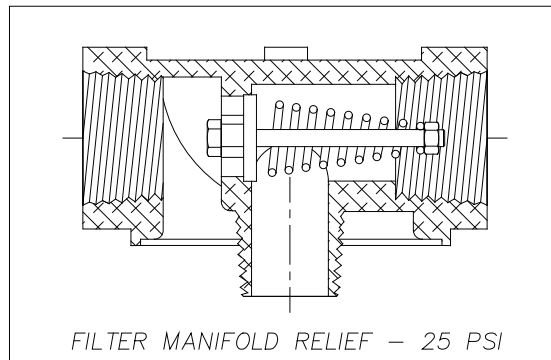
WARNING: Before servicing, stop auxiliary engine and remove ignition key or disconnect negative battery cable.

CROSS REFERENCE FOR FILTER ELEMENT

Wix	51551
Fram	P1653
Napa	1551
Gresen	1551
Motor Craft (Ford)	FH 10
A-C Delco	PF 16
Hastings	P 122
Cross	1A9021



RETURN LINE FILTER DWG-M00026

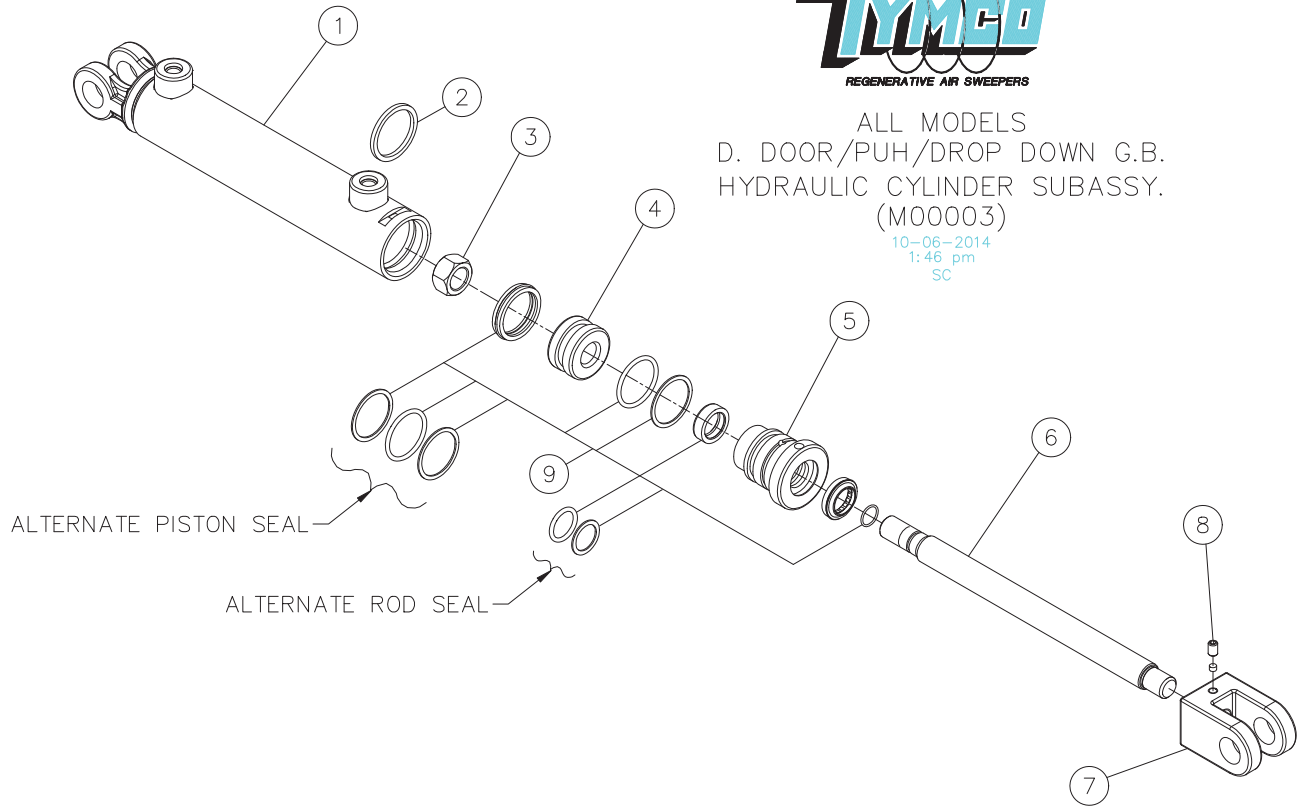


NOTE: MANIFOLD HAS BUILT IN RELIEF VALVE PRE-SET. (M00026)
REV A



ALL MODELS
D. DOOR/PUH/DROP DOWN G.B.
HYDRAULIC CYLINDER SUBASSY.
(M00003)

10-06-2014
1:46 pm
SC



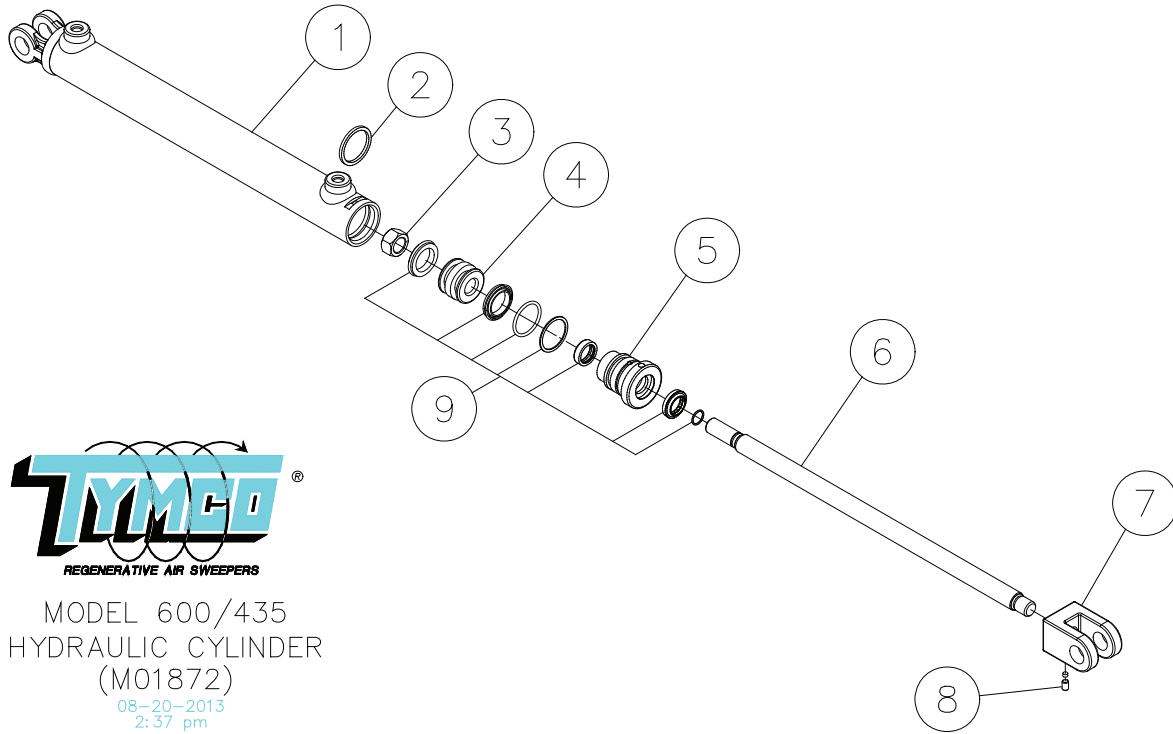
**TYMCO MODEL 435/DST-4
PICKUP HEAD/DROP DOWN GUTTER BROOM CYLINDER ASSEMBLY
DWG-M00003**

ITEM	QTY.	PART NO.	DESCRIPTION
	1	503364	Door/Pickup Head Cylinder Assembly
1	1	-	Tube Assembly
2	1	12203	Ring Retainer
3	1	12204	Lock Nut
4	1	22269	Piston
5	1	12207	Head
6	1	-	Rod
7	1	12362	Clevis
8	1	-	Set Screw
9	1	5010388	Seal Kit - Universal

NOTE: TYMCO does not stock any base parts. (Seal Kits Only)

Universal Seal Kit contains seals for both o-ring style cylinders and u-cup and crown seal style cylinders.

J

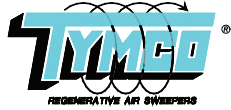


MODEL 600/435
HYDRAULIC CYLINDER
(M01872)
08-20-2013
2:37 pm
DG

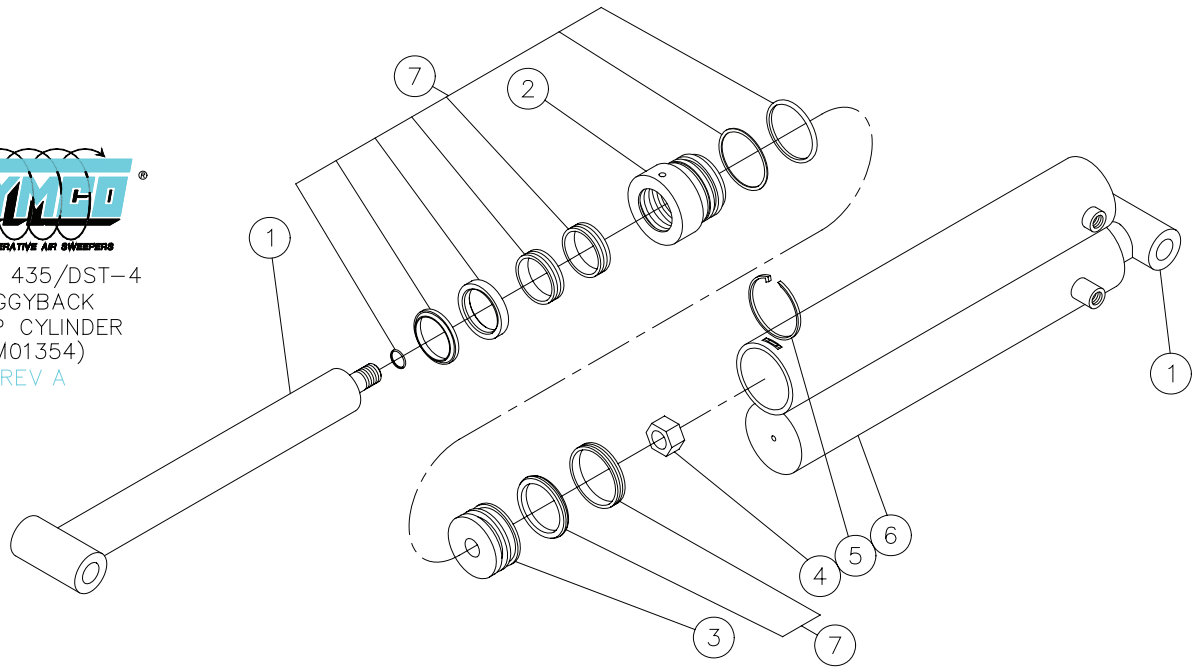
**TYMCO MODEL 435/DST-4
DUMP DOOR CYLINDER ASSEMBLY
DWG-M01872**

ITEM	QTY	PART NO	DESCRIPTION
	1	503362	Dump Door Cylinder Assembly
1	1	-	Tube Assembly
2	1	12203	Ring Retainer
3	1	12204	Lock Nut
4	1	12205	Piston
5	1	12207	Head
6	1	-	Rod
7	1	12362	Clevis
8	1	-	Set Screw
9	1	5012771	Seal Kit

NOTE: TYMCO does not stock any base parts. (Seal Kits Only)



MODEL 435/DST-4
 PIGGYBACK
 DUMP CYLINDER
 (M01354)
 REV A



**TYMCO MODEL 435/DST-4
 DUMP CYLINDER "PIGGYBACK" ASSEMBLY
 DWG-M01354**

ITEM	QTY	PART NO	DESCRIPTION
	1	505148	Dump Cylinder Assembly
1	1	-	Rod Assembly
2	1	-	Head
3	2	-	Piston
4	2	-	Lock Nut
5	2	12961	Ring Retainer
6	1	-	Tube Assembly
7	1	20556	Seal Kit

NOTE: TYMCO does not stock any base parts. (Seal Kits Only)

J

HYDRAULIC CYLINDER DISASSEMBLY/REASSEMBLY



WARNING: Before servicing, stop auxiliary engine and remove ignition key or disconnect negative battery cable. When working under or around raised hopper, *ALWAYS install pin against safety prop.*

TO DISASSEMBLE:

Before beginning disassembly, prepare an oil bath of clean hydraulic oil to receive parts as described in the following procedures. Refer to appropriate hydraulic cylinder assembly drawing.

NOTE: See appropriate Hydraulic Cylinder Parts List for seal kit part numbers.

1. Cap off cylinder ports, wash and wipe cylinder clean and free from all dirt. Remove caps and pull rod slowly until fully extended and all oil has been dispersed. Push the rod back in.
2. Clamp vise around cylinder tube near base end (not too tightly to avoid distorting tube) with retaining ring slot face up.
3. Use spanner wrench (if available) or pipe wrench and gently turn head until the separation of retaining ring is in sight through retaining ring slot. Turn to a suitable position so that a small screwdriver can be inserted underneath retaining ring sharp edge. Hold screwdriver in place and turn head in a direction that will result in retaining ring starting outside of slot. Remove screwdriver and turn head until retaining ring has "walked" its way out of the slot and remove.
4. Pull on rod and remove complete rod assembly.
5. Remove nut, slide components free from rod. Discard seals. Place small components in oil bath and wash clean. Check for burrs and metal objects on small components, rod, and tube.

TO REASSEMBLE:

1. Lubricate all new seals and place them on matching parts as shown in Drawing.
2. Slide head onto rod. Place piston on end of rod and screw nut down tight.
3. Assemble rod assembly into tube, giving a slight twist while inserting into tube. Push rod until it has bottomed out.
4. Tap head into tube and turn until retaining ring hole aligns with slot in tube. Insert bent end of retaining ring into hole and turn head until ring is completely inside of tube: then turn head a quarter turn.

WATER SYSTEM

TABLE OF CONTENTS

SECTION K	PAGE
Function	K-1
Operation & Components	K-1
Winterization	K-3
Troubleshooter's Guide	K-5
Water System Assembly Drawing and Parts List	K-6
Water Control Valve Drawing and Parts List	K-9
Electric Water Pump Drawing	K-10
Water Pump Service	K-11
Fan Nozzle Drawings and Parts Lists	K-12

FUNCTION

The TYMCO dust control system is designed to maximize dust suppression without minimizing sweeping efficiency. The REGENERATIVE AIR sweeping system is designed to remove fine particulates from the sweeping surface. Mechanical sweepers flood the surface creating a paste out of the fines, thereby, leaving them behind stuck to the pavement as a film. The TYMCO dust control system injects water spray into dust generation areas controlling the dust at its source which allows the fine particulates on the sweeping surface to be easily removed by the unique REGENERATIVE AIR sweeping system.


The dust control system is responsible for suppressing airborne dust created by a properly functioning sweeper under normal sweeping conditions. Excessively dusty sweeping is often not the fault of the dust control system, but that of a poorly functioning sweeper. It is extremely important for proper dust suppression that the sweeper pickup head curtains be of adequate length, the hopper is properly sealed and that the pressure and suction tubes are in good condition. Even a small seal leak causes excessive dust and poor sweeping performance.

NOTE: This water system is **NOT** designed to flush the surface.

OPERATION AND COMPONENTS

WATER TANKS

The Model DST-4 utilizes two 38.5 gallon (145.7 Liter) water tanks which can be filled by connecting the fill hose to a fire hydrant or a garden hose if a fire hydrant is not available.



CAUTION: The plastic water tank can be damaged by heat or fire. Protect the tank if nearby welding or cutting torch operations are necessary.

K

SUCTION FILTRATION

The water is drawn through a port at the bottom of the tank(s) to a strainer located in the water suction hose between the tank and the pump to prevent foreign particles from entering the system.

WATER PUMP (Electric)

The 12 volt electric water pump is a low pressure/low volume pump located just below the auxiliary engine.

WATER MANIFOLD

The water manifold assembly is located on the sweeper frame rail and consists of:

1. Electrically operated valves which control water distribution to strategically located spray nozzles. These valves are controlled by switches on the operator console in the cab.
2. A relief valve with a return line to tank.

LIQUID LEVEL SENSOR SYSTEM

The liquid level sensor system is an electronically controlled water level sensor which provides water pump protection when the water level in the tank becomes depleted. On units with the BlueLogic Control System, the sensor turns off the water pump and activates a low water indicator on the console display. In addition, a message will appear on the display and an audible chirp will sound in the cab. To silence the alarm, acknowledge the message or turn off the main water system switch. The audible alarm can be disabled using the User Settings in the console display. The liquid level sensor circuit is controlled by an electronic module that is located near the BlueLogic module on the auxiliary power unit rail. The liquid level sensor probe is usually located at the water tank suction/drain assembly.

SPRAY NOZZLES

One high volume nozzle is located in the right side wall of the hopper. There are spray mist nozzles mounted on each gutter broom. The nozzles are located in these positions to minimize airborne dust. The switches and indicator light for the water system are located on the operator console in the cab and are designated:

Left Gutter Broom Water -	Controls LH Gutter Broom Nozzles
Hopper Water -	Controls Hopper Nozzle
Right Gutter Broom Water -	Controls RH Gutter Broom Nozzles
Yellow Low Water Warning Light -	Illuminates Upon Water Depletion

OPERATION

1. Fill water tank.
2. Start auxiliary engine, lower pick-up head and set desired RPM for sweeping.
3. Turn WATER SYSTEM switch on.
4. Turn on selector switches for desired water distribution (if equipped).

WINTERIZATION PROCEDURE

The TYMCO water system requires freeze protection during freezing weather. Your TYMCO BlueLogic® control system will assist you in successfully winterizing the water system.

The water system can be winterized using RV and marine antifreeze or compressed shop air. Using antifreeze will require 2 gallons of RV and marine antifreeze, a 6 foot length of $\frac{3}{4}$ inch water hose and a bucket. Using air requires special tools to clamp off the suction line and inject regulated compressed air into the inlet of the water pump. To winterize the water system, follow this procedure:

1. Turn on the sweeper ignition and do NOT start the auxiliary engine.
2. Press the menu button to access the page select menu.
3. Select Service Tools then Water System Winterization.
4. On the Winterization page, press the Winterize Water System button.
5. Open the water tank drain valve and wait for the water to drain. If equipped with Pressure Inlet Water Injection, turn it on and open the ball valve near the pressure inlet. Press Next.
6. Turn on all water solenoid switches. The main water switch can remain off. Press Next.
7. Select the winterization method to use: Antifreeze or Air. For Antifreeze go to step 8, for air go to step 14.



**MENU
BUTTON**

Antifreeze Procedure:

8. Loosen the hose clamp and remove the suction hose from the inlet to the water strainer. Install a 5 foot, $\frac{3}{4}$ inch diameter hose on the strainer fitting. Place the other end of the hose in a bucket filled with 2 gallons of RV and marine antifreeze. Press Next.
9. Make sure the suction hose is securely submerged in the antifreeze. Press Next. This action will turn on the water pump and water solenoids and begin circulating antifreeze through the system.
10. The pump will run for 30 seconds. Inspect each water nozzle to ensure the antifreeze is spraying from all nozzles.
11. If additional time is needed, refill the bucket with antifreeze and press Repeat. If all lines are filled with antifreeze, press Next.
12. Remove the antifreeze hose from the strainer and reconnect the original hose.
13. The water system is winterized.

Air Procedure:

14. Clamp off the suction hose between the water tank and suction strainer.
15. Apply a 30 to 40 psi regulated compressed air supply to the inlet of the water pump. Press Next to start the flow of air through the system.

K

16. Allow time for the water lines to purge. Press Next when all nozzles are blowing air.
17. Remove shop air supply and unclamp the suction hose.
18. Drain the pre-filter bowl (Don't lose rubber seal!).
19. The water system is winterized.

Note: An optional air purge kit is available which simplifies using shop compressed air to purge the water system. For more information on this kit, see the Option Section of this manual.

Once completed, the water system will be electronically tagged as winterized. The winterized icon will be shown on the main page to indicate the water system is winterized. The winterization tag will be removed when the presence of water is sensed in the system. The winterization and de-winterization events will be logged in the Water System Winterization Log. To access the log, go the Winterization Page and press the Winterization History button.



**WINTERIZED
ICON**



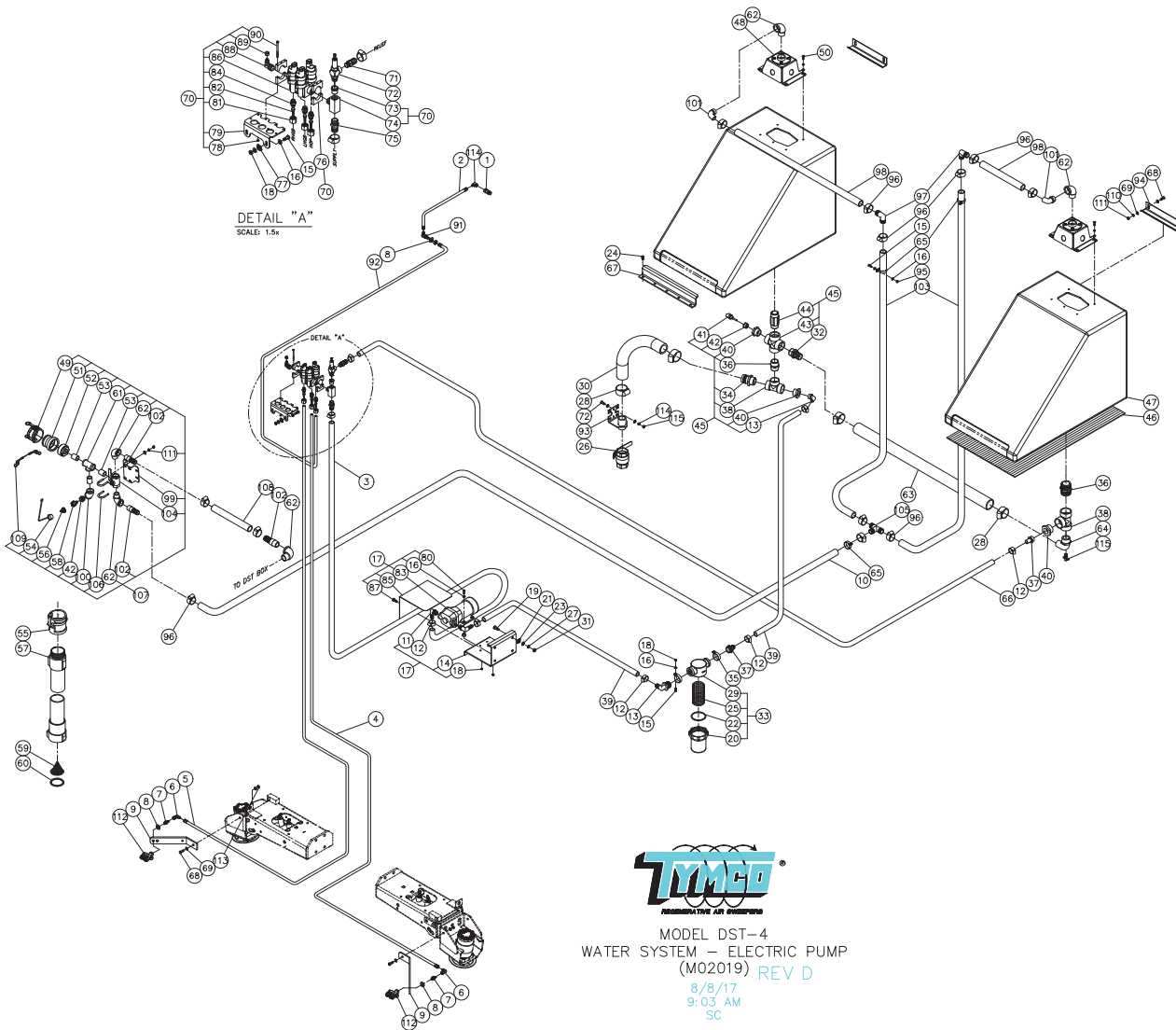
WINTERIZATION MENU

NOTICE: The software interface is a tool to successfully winterize the system. It is the operator's responsibility to ensure the procedure is followed and the system is purged of water and successfully winterized.

TROUBLESHOOTER'S GUIDE

PROBLEM	CAUSE	SOLUTION
Low Pressure	Worn pump head	Replace (see SERVICE & MAINTENANCE Section).
	Worn nozzles	Replace with nozzles of proper size.
	Nozzle screens clogged	Clean.
	Air leak in pump inlet plumbing	Disassemble, reseal and reassemble.
	Inlet suction strainer clogged	Clean, check more frequently.
	Leaky discharge hose	Repair or replace.
Pump motor will not run	Blown fuse	Check fuse in main console panel.
	Defective console switch	Remove and replace.
	Electrical problem	Check liquid level sensor relays at control console.
	Defective pump motor	Remove and replace.
	Water tank empty	Refill.
Pump continues to run for a few seconds after water tank is depleted	Normal condition, result of slosh filter circuit liquid level sensor control module	None required.

K



MODEL DST-4
 WATER SYSTEM - ELECTRIC PUMP
 (M02019) REV D
 8/8/17
 9:03 AM
 SC

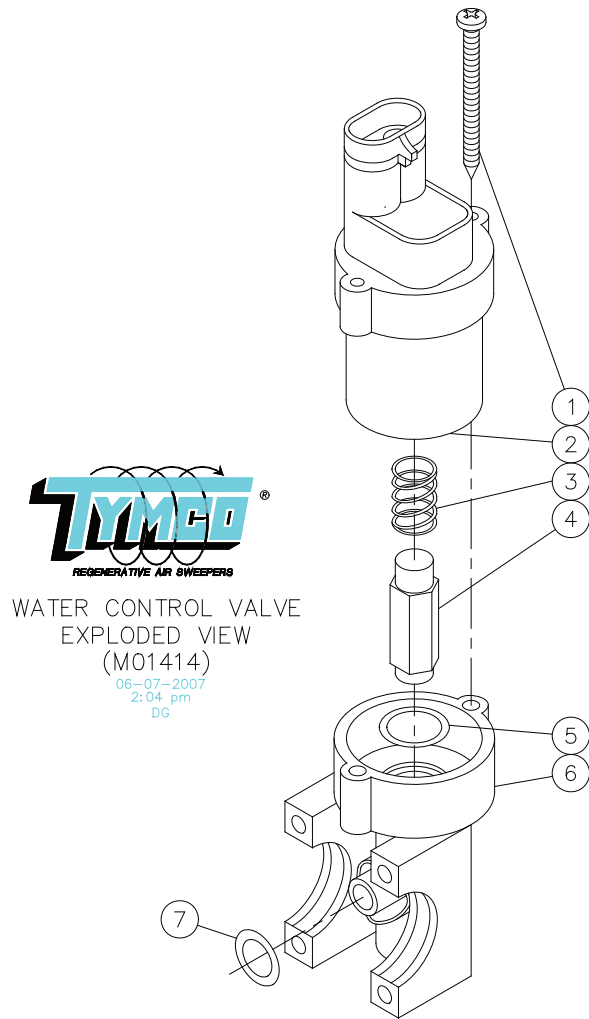
TYMCO MODEL DST-4 WATER SYSTEM PARTS LIST DWG-M02019

ITEM	QTY.	PART NO.	DESCRIPTION
	1	506987	DST-4 Water System
1	1	30826	Hopper Spray Nozzle - 1/4 NPT Wall Mount
2	1	507096	Hose Assembly - 1/4 x 75" Water
3	1	5016558	Hose - 3/4 Water x 30"
4	1	506030	Hose Assembly - 1/4 x 144" Water
5	1	505453	Hose Assembly - 1/4 x 108"
6	2	30875	Fitting - 1/4 SAE x 1/4 Fem. Swv. 90°
7	2	20829	Fitting - 1/4 JIC x 1/4 NPT Str.
8	6	10311	1/2" Flat Washer
9	2	5020173	G.B. Water Nozzle Bracket
10	1	5020027	Hose - 1" x 160" Water
11	2	10695	Fitting - Elbow Adapter - 3/4 Hose
12	8	11318	Hose Clamp - 5/8 x 1-1/4
13	1	20658	Fitting - 1 NPT x 3/4 HB 90° Nylon
14	1	5016402	Mount Bracket - Electric Water Pump
15	6	10111	Bolt - 1/4-20 x 1 HHCS

ITEM	QTY.	PART NO.	DESCRIPTION
16	12	10303	1/4" Flat Washer
17	1	504929	Electric Water Pump Assembly
18	4	10246	Nut - 1/4-20 Top Lock
19	2	10129	Bolt - 3/8-16 x 1-1/4 HHCS
20	1	5021282	Bowl - Strainer
21	1	10359	3/8" Toothed Dished Washer
22	1	5015315	Gasket - Strainer
23	8	10307	3/8" Flat Washer
24	10	10104	5/16 x 3/4 Self Tap Screw
25	1	5015314	Screen - Strainer
26	1	5012780	1-1/2 Ball Valve - Full Port
27	2	10308	3/8" Lock Washer
28	4	11320	Hose Clamp - 1-1/2 x 2-3/8
29	1	5021283	Cap - Strainer
30	1	20901	Hose Elbow - 2I.D. x 9 1/2
31	2	10209	Nut - 3/8-16 Hex
32	2	30614	Fitting - 1-1/2 NPT x 1-1/2 HB Straight Nylon
33	1	508346	Strainer Assembly
34	1	30698	Fitting - 1-1/2 NPT x 2 HB Straight Nylon
35	3	11362	Clamp - 1-1/8" Dipped
36	1	30611	Fitting - 1-1/2 NPT Close Nipple Nylon
37	2	20682	Fitting - 1 NPT x 3/4 HB Straight Nylon
38	1	30612	Fitting - 1-1/2 FPT Tee Nylon
39	2	5018375	Hose - 3/4 x 92" Water
40	1	30606	Fitting - 1-1/2 NPT x 1 NPT Reducer Nylon
41	1	11748	Liquid Level Sensor
42	2	20893	Fitting - 1 NPT x 3/8 NPT Reducer
43	1	30658	1-1/2 NPT Nylon Cross
44	1	40612	Fitting - 1-1/2 NPT x 4 Polypropylene
45	1	506505	Water Drain Subassembly from Tank
46	2	5018389	Tank Mat
47	2	505708	38-1/2 Gallon Water Tank Assembly
48	2	508532	Air Gap Subassembly
49	1	12539	Cap - Quick Coupler
50	8	40130	Bolt - 1/4-20 x 1/2 HHCS Brass
51	1	12538	Adapter - Male x FNPT
52	1	20665	Fitting - 2-1/2 NPT x 1 NPT Red. Bushing Galv.
53	1	20606	Fitting - 1 NPT Close Nipple Galvanized
54	1	10820	Cap - Garden Hose
55	1	12540	Coupler Female x FNPT Deluge
56	1	20803	Screen/Washer - Garden Hose
57	1	501711	Filler Hose - Water System
58	1	20802	Fitting - Female Garden Hose Swivel
59	1	5012933	Strain Water Fill
60	1	12541	Gasket - Fire Hose
61	1	10689	Fitting - 1 FPT Tee
62 (Part of DST System)		20666	Fitting - 1 NPT Street Elbow 90° Galvanized
63	1	5018378	Hose - 1-1/2 Crossover 56"
64	1	5019658	Fitting - 1 1/2 MPT x 1 1/2" HB 90° w/1/4 Nyl.
65	4	11332	Dipped Clamp - 1 1/2
66	1	5020025	Hose - 3/4 x 132" Water
67	2	5018348	Front Clamp Bracket - 38-1/2 Gallon Water Tank
68	16	10117	Bolt - 5/16-18 x 1 HHCS
69	36	10305	5/16 Flat Washer
70	1	505407	REMCOR Water Manifold Assy. - 3 Station
71	1	20861	Fitting - 3/8 MPT x 3/4 HB Straight
72	1	5015570	Relief Valve - 25 PSI

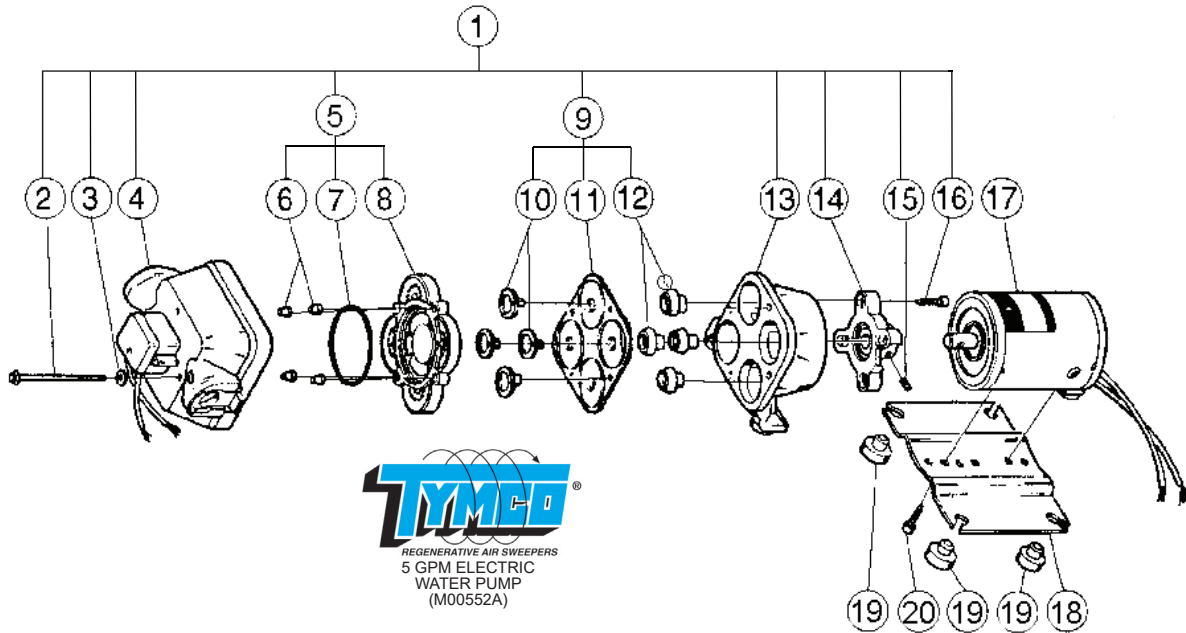
K

ITEM	QTY.	PART NO.	DESCRIPTION
73	1	10814	Fitting - 1 MPT x 3/8 FPT Reducer Brass
74	1	20895	Fitting - 1/2 NPT Male Branch Tee
75	1	20672	Fitting - 1/2 MPT x 3/4 HB Straight Nylon
76	4	12938	Valve Body Clamp
77	1	10357	1/4" Toothed Dished Washer
78	4	10260	Nut - 8-32 KEPT
79	1	5018053	Water Manifold Mount
80	4	10115	Bolt - 1/4-20 x 1-1/4 HHCS
81 (Party of Hose Assy.)		30683	Fitting - 1/4 FPT Swivel Nut
82	3	30682	Fitting - 1/4 HB Insert
83	1	502556	5 GPM Electric Water Pump
84	3	30681	Fitting - 1/4 NPT Close Nipple
85	1	5016403	Water Pump Cover
86	1	505395	REMCOR Water Manifold - 3 Station
87	1	30126	Bolt - 5/16 x 1/2 HWH Rolock Self Tap
88	1	30833	Fitting - 1/2 MPT x 1/4 SAE 90°
89	1	20855	Fitting - 1/4 JIC Cap
90	4	40124	Screw - 8-32 x 2-1/2 Pan Head
91	1	10751	Fitting - 1/4 JIC Bulkhead 90°
92	1	505855	Hose Assembly - 1/4 Water x 168"
93	1	501836	Adapter - Water Drain Valve
94	2	5020017	Water Tank Tie Down Bracket
95	4	10274	Nut 1/4-20 Kept
96	10	11335	Hose - 4/8" to 1-3/4"
97	2	40617	Fitting - 1" NPT x 1" HB 90 Nylon
98	2	5020026	Hose - 1" x 10" Water
99	1	5019470	Mount Bracket
100	1	30675	Fitting - 1" NPT x 45 Elbow Galv.
101	2	20609	Fitting - 1" MPT x 1" HB Nyl.
102 (Part of DST System)		10671	Fitting - 1" NPT x King Nipple
103	2	5014122	Hose - 1" x 48" Water
104	1	22283	3 Way Valve Assembly
105	1	40618	Fitting 1 HB Tee
106	2	11356	U-Bolt - 1 3/8 Dia.
107 (Part of DST System)		506984	Water Filly Subassembly
108 (Part of DST System)		5020033	Hose - 1" x 110" Water
109	1	506879	Steel Wire Lanyard
110	6	10306	5/16 - Lock Washer
111	6	10205	Nut - 5/16 UNC Hex
112	2	20810	Dual Swv. Fan Nozzle w/11003 Tip
113	2	10229	Nut - 5/16-18 Top Lock
114	1	10818	Fitting - 1/4 SAE x 1/4 NPT 90°
115	1	20826	Fitting - 1/4 NPT Drain Cock
Not Shown	1	505723	Wire Harness Liquid Level Sensor



WATER CONTROL VALVE PARTS LIST DWG-M01414

ITEM	QTY	PART NO	DESCRIPTION
	1	12962	REMCOR Valve Assembly
1	2		Screw - #6 x 1-3/4
2	1		Coil
3	1		Spring
4	1		Plunger
5	1		O'Ring
6	1		Valve Body
7	1		O'Ring



**ELECTRIC WATER PUMP - 5 GPM
DWG-M00552A**

ITEM	QTY.	PARTS NO.	DESCRIPTION
1	1	502556	Electric Water Pump Assembly
2	4		Pump Head Assembly
3	4		Pump Head Screw
4	1		Washer
5	1	5014452	Upper Housing
6	4		Check Valve Assembly
7	1		Ferrules
8	1		O-Ring
9	1	5014451	Check Valve
10	4		Diaphragm and Piston Kit
11	1		Outer Piston
12	4		Diaphragm
13	1		Inner Piston
14	1		Bearing
15	1		Cam Bearing
16	4		Allen Screw
17	1	5015539	Screw
18	1		Electric Motor
19	4		Base Plate
20	2		Rubber Isolators
			Bolt

**SERVICE AND MAINTENANCE
ELECTRIC WATER PUMP - 5 GPM
(502556)**

Refer to Pump Assembly drawing M00552 for item identification.

TO DISASSEMBLE:

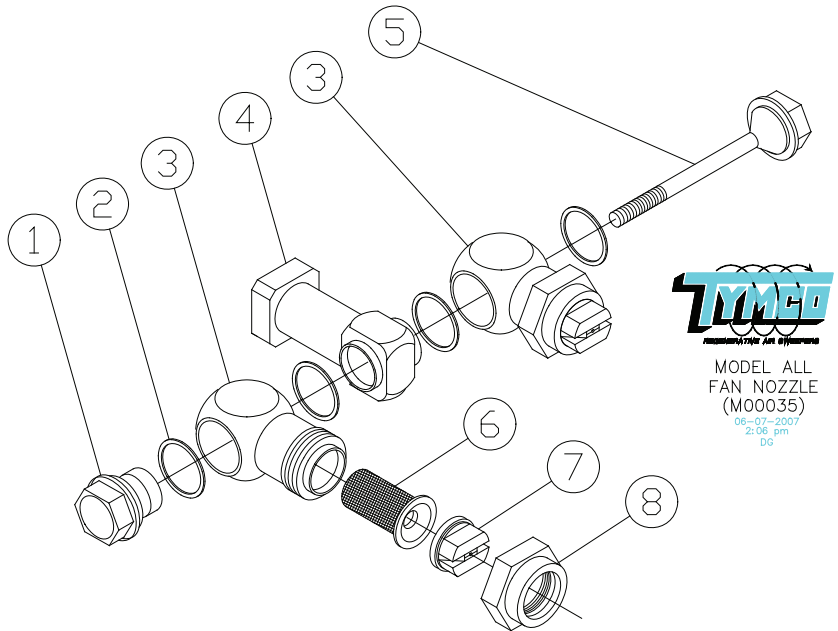
1. Loosen four pump head cap screws (2).
2. Rotate bearing cover (13) so that drain notch at its base is aligned with the cam/bearing assembly set screw (15).
3. Using a 1/8" Allen wrench, loosen set screw and slide pump head off motor shaft.
4. Disassembly pump head.

TO ASSEMBLE:

1. Apply light coat of grease to motor shaft prior to assembly.
2. Assemble diaphragm/piston kit (9) with raised side of diaphragm facing away from motor, flat side of outer pistons facing motor, and hex stem of inner pistons aligned into hex holes in outer pistons.
3. Align outer pistons with slots in cam assembly (14) making sure screw holes line up, also. Otherwise, diaphragm will leak.
4. Install and partially tighten cam piston screws, center pistons in diaphragm, and torque screws to 18 lbs. in (2 Nm).
5. Install bearing cover and cam/bearing assembly on motor shaft and tighten set screw.

NOTE: Set screw MUST be positioned in shaft indentation prior to tightening. Position of set screw is critical.

6. Using care, properly seat O-ring in check valve assembly (5).
7. Position ferrules in upper housing (4) and push check valve assembly into upper housing.
8. Insure that fitting slip locks are positioned properly in their respective slots prior to installing the upper housing (4) onto the bearing cover.
9. Install upper housing assembly onto bearing cover and evenly torque pump head screws (2) to 25 lbs. in. (2.8 Nm).



**TYMCO MODEL 435
FAN NOZZLE PARTS LIST
DWG-M00035**

ITEM	QTY.	PART NO.	DESCRIPTION
	1	20810	Double Swivel Fan Nozzle Assembly
1	1		Nut
2	4		Shim
3	2		Swivel Body
4	1		Tee Swivel
5	1		Tie Bolt
6	2	10837	Strainer
7	2	20809	Tip - 11003
8	2	10838	Cap

HI/LO WATER SYSTEM

TABLE OF CONTENTS

SECTION K	PAGE
Function	K-1
Operation & Components	K-1
Winterization	K-4
Troubleshooter's Guide	K-6
HI/LO Water System Assembly Drawing	K-8
HI/LO Water System Assembly Parts List	K-9
High Pressure Washdown Procedure	K-13
Pump Drawing	K-14
Pump Parts List	K-15
Pump Service	K-16
Water Control Valve	K-19
Fan Nozzle Drawings and Parts Lists.	K-20

FUNCTION

The TYMCO dust control system is designed to maximize dust suppression without minimizing sweeping efficiency. The REGENERATIVE AIR sweeping system is designed to remove fine particulates from the sweeping surface. Mechanical sweepers flood the surface creating a paste out of the fines, thereby, leaving them behind stuck to the pavement as a film. The TYMCO dust control system injects water spray into dust generation areas controlling the dust at its source which allows the fine particulates on the sweeping surface to be easily removed by the unique REGENERATIVE AIR sweeping system.


The dust control system is responsible for suppressing airborne dust created by a properly functioning sweeper under normal sweeping conditions. Excessively dusty sweeping is often not the fault of the dust control system, but that of a poorly functioning sweeper. It is extremely important for proper dust suppression that the sweeper pick-up head curtains be of adequate length, the hopper is properly sealed and that the pressure and suction tubes are in good condition. Even a small leak causes excessive dust and poor sweeping performance.

NOTE: This water system is NOT designed to flush the surface.

OPERATION AND COMPONENTS

WATER TANKS

The Model DST-4 utilizes two 38.5 gallon (145.7 Liter) water tanks which can be filled by connecting the fill hose to a fire hydrant or a garden hose if a fire hydrant is not available.



CAUTION: The plastic water tank can be damaged by heat or fire. Protect the tank if nearby welding or cutting torch operations are necessary.

SUCTION FILTRATION

The water is drawn through a port at the bottom of the tank to a strainer located in the suction hose between the tank and the pump to prevent foreign particles from entering the system.

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WATER PUMP (High Pressure-Belt Drive)

This pump is utilized only on sweepers equipped with the Hi/Low Wash Down option. It is a high pressure/low volume pump, belt driven through a clutch/sheave off the auxiliary engine.

WATER MANIFOLD

The water manifold assembly is located on the sweeper frame rail and consists of:

1. Electrically operated valves which control water distribution to strategically located spray nozzles. These valves are controlled by switches on the operator console in the cab.
2. A relief valve with a return line to tank.

LIQUID LEVEL SENSOR SYSTEM

The liquid level sensor system is an electronically controlled water level sensor which provides water pump protection when the water level in the tank becomes depleted. On units with the BlueLogic Control System, the sensor turns off the water pump and activates a low water indicator on the console display. In addition, a message will appear on the display and an audible chirp will sound in the cab. To silence the alarm, acknowledge the message or turn off the main water system switch. The audible alarm can be disabled using the User Settings in the console display. The liquid level sensor circuit is controlled by an electronic module that is located near the BlueLogic module on the auxiliary power unit rail. The liquid level sensor probe is usually located at the water tank suction/drain assembly.

SPRAY NOZZLES

One high volume nozzle is located in the right side wall of the hopper. There are spray mist nozzles mounted just forward of and above each gutter broom. The nozzles are located in these positions to minimize airborne dust. The switches and indicator light for the water system are located on the operator console in the cab and are designated:

LEFT GUTTER BROOM WATER -	controls LH gutter broom nozzles
HOPPER WATER -	controls hopper nozzle
RIGHT GUTTER BROOM WATER -	controls RH gutter broom nozzles
YELLOW LOW WATER WARNING LIGHT -	illuminates upon water depletion

DUST CONTROL WATER SYSTEM OPERATION

1. Fill water tank.
2. Start auxiliary engine, lower pick-up head and set desired RPM for sweeping.
3. Turn WATER SYSTEM switch on.
4. Turn on selector switches for desired water distribution.

WASHDOWN SYSTEM OPERATION

The optional Hi / Lo Pressure Wash Down System feature allows a hose and high pressure wash down wand to be attached for cleaning. The water tank should be full when using the wash down system.

To use the wash down system:

1. Turn the exterior water pump control switch, located on the suction side of the sweeper, to the off position.
2. Detach the water manifold hose from the quick coupler hose connector, also located on the suction side of the sweeper, and then attach the wash hose to the quick coupler.
3. Start the auxiliary engine, and turn on the water system.
4. With the wash-down wand in hand, turn the exterior water pump control switch to the on position.

The wash-down system is now ready for use; simply pull the trigger and you're ready to go. Remember to keep safety in mind. This is not a toy.

To disconnect the wand:

1. First turn off the exterior water pump switch, then depress the trigger to release any trapped pressure.
2. Disconnect the wash-down hose, and then reconnect the water manifold hose.

Following use of the wash-down:

1. First turn off the exterior water pump switch, then depress the trigger to release any trapped pressure.
2. Turn the ball valve back to the sweep position and ensure the water pump switch back to the on position.

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WINTERIZATION PROCEDURE

The TYMCO water system requires freeze protection during freezing weather. Your TYMCO BlueLogic® control system will assist you in successfully winterizing the water system.

The water system can be winterized using RV and marine antifreeze or compressed shop air. Using antifreeze will require 2 gallons of RV and marine antifreeze, a 6 foot length of $\frac{3}{4}$ inch water hose and a bucket. Using air requires special tools to clamp off the suction line and inject regulated compressed air into the inlet of the water pump. To winterize the water system, follow this procedure:

1. Turn on the sweeper ignition and do NOT start the auxiliary engine.
2. Press the menu button to access the page select menu.
3. Select Service Tools then Water System Winterization.
4. On the Winterization page, press the Winterize Water System button.
5. Open the water tank drain valve and wait for the water to drain. If equipped with Pressure Inlet Water Injection, turn it on and open the ball valve near the pressure inlet. Press Next.
6. Turn on all water solenoid switches. The main water switch can remain off. Press Next.
7. Select the winterization method to use: Antifreeze or Air. For Antifreeze go to step 8, for air go to step 15.



**MENU
BUTTON**

Antifreeze Procedure:

8. Loosen the hose clamp and remove the suction hose from the inlet to the water strainer. Install a 5 foot, $\frac{3}{4}$ inch diameter hose on the strainer fitting. Place the other end of the hose in a bucket filled with 2 gallons of RV and marine antifreeze. Press Next.
9. Start the auxiliary engine.
10. Make sure the suction hose is securely submerged in the antifreeze. Press Next to turn on the water pump and water solenoids and begin circulating antifreeze through the system.
11. The pump will run for 30 seconds. Inspect each water nozzle to ensure the antifreeze is spraying from all nozzles. If equipped with a hose reel, manually open the wash down line until antifreeze is sprayed from the wash hose.
12. If additional time is needed, refill the bucket with antifreeze and press Repeat. If all lines are filled with antifreeze, press Next.
13. Remove the antifreeze hose from the strainer and reconnect the original hose.
14. The water system is winterized.

Air Procedure:

15. Clamp off the suction hose between the water tank and suction strainer.

16. Apply a 30 to 40 psi regulated compressed air supply to the inlet of the water pump. Press Next.
17. Allow time for the water lines to purge. If equipped with a hose reel, manually open the wash down line until air is blowing from the wash hose. Press Next when all nozzles are blowing air.
18. Start the auxiliary engine. The water pump and solenoids will stay engaged for a few seconds to purge all three cylinders of water and then shut off.
19. Remove the shop air supply and unclamp the suction hose.
20. Drain the pre-filter bowl (Don't lose rubber seal!).
21. The water system is winterized.

Note: An optional air purge kit is available which simplifies using shop compressed air to purge the water system. For more information on this kit, see the Option Section of this manual.

Once completed, the water system will be electronically tagged as winterized. The winterized icon will be shown on the main page to indicate the water system is winterized. The winterization tag will be removed when the presence of water is sensed in the system. The winterization and de-winterization events will be logged in the Water System Winterization Log. To access the log, go the Winterization Page and press the Winterization History button.



**WINTERIZED
ICON**



WINTERIZATION MENU

NOTICE: The software interface is a tool to successfully winterize the system. It is the operator's responsibility to ensure the procedure is followed and the system is purged of water and successfully winterized.

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WATER SYSTEM TROUBLESHOOTER'S GUIDE

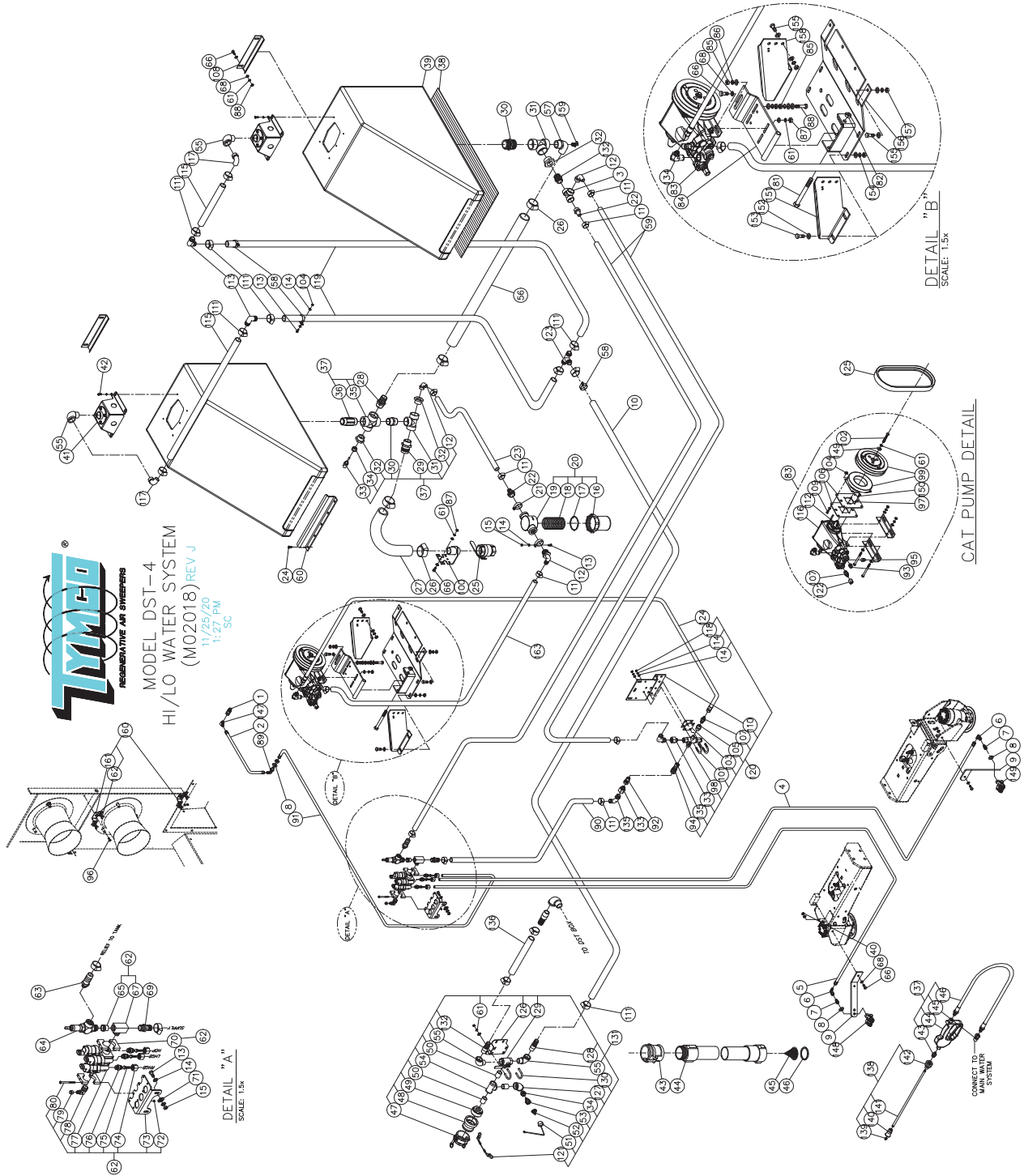
PROBLEM	CAUSE	SOLUTION
Low pressure	Worn nozzles	Replace with nozzles of proper size.
	Belt slippage	Tighten or replace, use correct belt.
	Air leak in inlet plumbing	Disassemble, reseal and reassemble.
	High pressure relief valve stuck open or improperly adjusted	Clean and adjust relief valve, check for worn and dirty valve seats.
	Inlet suction strainer clogged	Clean, check more frequently.
	Fouled or dirty inlet or discharge valves	Clean inlet and discharge valve assemblies.
	Worn inlet or discharge valves	Replace worn valves, valve seats.
Leaky discharge hose		Repair or replace.
Pump runs extremely rough, pressure low	Inlet restrictions and/or air leaks. Damaged cup or stuck inlet or discharge valve	Clean out foreign material, replace worn or damaged cups or valves.
Water leakage from under the inlet manifold	Worn inlet manifold seals	Install new seals.
	Leaking sleeve o'rings	Replace o'rings.
Oil leaking between crankcase and pumping section Oil leaking in the area of crankshaft	Worn crankcase piston rod seals	Replace crankcase piston rod seals.
	Worn crankshaft seal or improperly installed oil seal retainer o'ring	Remove oil seal retainer and replace damaged o'ring and/or seals.
	Bad bearing	Replace bearing.
Excessive play in the end of the crankshaft pulley	Worn main bearing from excessive tension on drive belt	Replace bearing, properly tension belt.
Water in crankcase	May be caused by humid air condensing into water inside the crankcase	Change out in 3 months or 500 hour intervals using 30 weight non-detergent premium hydraulic oil with anti-wear and rust inhibitor additives.

PROBLEM	CAUSE	SOLUTION
Water in crankcase (cont.)	Leakage of inlet manifold seals and/or piston rod sleeve o'rings	Replace seals and/or sleeve o'rings.
Oil leaking from underside of crankcase	Worn crankcase seals	Replace seals.
Oil leakage from drain plug	Loose drain plug or worn drain plug o'ring	Tighten drain plug or replace o'ring.
Loud knocking noise in pump	Clutch assembly loose	Tighten.
Frequent or premature failure of the cups	Broken or worn bearing	Replace bearings.
	Scored rods or sleeves	Replace rods and sleeves.
	Damaged or worn cylinders	Replace cylinders.
	Running pump dry	DO NOT run pump without water. Check for suction leaks in the water suction line.
Pump will not run when adequate water is available in tank and console toggle switch is on	Defective console toggle switch	Replace switch.
	Water system fuse blown	Replace fuse and trouble shoot for electrical problem.
	Clutch not engaging	Check electrical circuit and pump ground.
	Debris collected in suction manifold/drain assembly	Open drain valve and flush thoroughly if necessary, partially disassemble and flush mud, wet sand, etc.
	Electrical problem	Check liquid level sensor relays at control console.
Pump continues to run for few seconds after water tank is depleted	Normal condition, result of slosh filter circuit in liquid level control module	None required.

AIR PURGE NOTICE

Sweeper dust control systems with liquid level sensor probe will experience pump failure due to piston cup wear if air purge valve is left in purge position when water system pump is turned on with water in tank(s). The liquid level sensor will allow the pump to run, but pump draws air through purge valve causing pump piston cups to fail due to friction. Dry run time of piston cups is approximately five minutes.

Always check purge valve position before running the system.



**TYMCO MODEL DST-4
HI/LO WATER SYSTEM PARTS LIST
DWG-M02018**

ITEM	QTY	PART NO	DESCRIPTION
	1	506986	Model DST-4 Hi/Lo Water System
1	1	30826	Hopper Spray Nozzle - 1/4 NPT Wall Mount
2	1	507096	Hose Assembly - 1/4 x 75" Water
3	1	30650	Fitting - 1 FPT Tee - Nylon
4	1	506030	Hose Assembly - 1/4 x 144" Water
5	1	505453	Hose Assembly - 1/4 x 108" Water
6	2	30875	Fitting - 1/4 SAE - 1/4 Fem. Swv. 90°
7	2	20829	Fitting - 1/4 JIC x 1/4 NPT Str.
8	7	10311	1/2" Flat Washer
9	2	5020173	Gutter Broom Water Nozzle Bracket
10	1	5020027	Hose - 1 x 160" Water
11	10	11318	Hose Clamp
12	2	20658	Fitting - 1 NPT x 3/4 HB 90°
13	6	10111	Bolt - 1/4-20 x 1 HHCS
14	12	10303	1/4" Flat Washer
15	4	10246	Nut - 1/4-20 Top Lock
16	1	5021282	Bowl - Strainer
17	1	5015315	Gasket - Strainer
18	1	5015314	Screen - Strainer
19	1	5021283	Cap - Strainer
20	1	508346	Strainer Assembly
21	3	11362	Clamp - 1-1/8" Dipped
22	2	20682	Fitting - 1 MPT x 3/4" HB Straight (Nylon)
23	1	5018375	Hose - 3/4 x 92" Water
24	10	10104	Screw - 5/16-18 x 3/4 Tap
25	1	5012780	Ball Valve - 1-1/2 Full Port
26	4	11320	Hose Clamp - 1 1/2 - 2 3/8
27	1	20901	Hose Elbow - 2 I.D. x 9.5"
28	1	30614	Fitting - 1-1/2 MPT x 1-1/2 HB Nylon
29	1	30698	Fitting - 1-1/2 MPT x 2 HB Straight Nylon
30	1	30611	Fitting - 1-1/2 MPT Close Nipple Nylon
31	1	30612	Fitting - 1-1/2 FPT Tee Nylon
32	1	30606	Fitting - 1-1/2 x 1 Reducer Bushing Nylon
33	1	11748	Liquid Level Sensor
34	1	20893	Fitting - 1 MPT x 3/8 FPT Reducer
35	1	30658	Fitting - 1-1/2 FPT Cross Nylon
36	1	40612	Fitting - 1-1/2 x 4 Nipple Polypropylene
37	1	506505	Water Drain Subassembly from Tank
38	2	5018389	Water Tank Mat
39	2	505708	38.5 Gallon Water Tank
40	2	10229	Nut - 5/16-18 Top Lock
41	2	508532	Air Gap Subassembly
42	8	40130	Bolt - 1/4-20 x 1/2 HHCS Brass
43	1	12540	Coupler - Female x FNPT Deluge
44	1	501711	Filler Hose - Water System
45	1	5012933	Strain - Water Fill
46	1	12541	Gasket - Fire Hose
47	1	12539	Cap - Quick Coupler
48	1	12538	Adapter - Male x FNPT
49	1	20665	Fitting - 2-1/2 x 1 Reducer Bushing Galvanized
50	2	20606	Fitting - 1" Close Nipple Galvanized

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ITEM	QTY	PART NO	DESCRIPTION
51	1	10820	Plug - 3/4 Male Garden Hose
52	1	20803	Screen/Washer Garden Hose
53	1	20802	Fitting - Female Garden Hose Swivel
54	1	10689	Fitting - 1 Tee Galvanized
55	2	20666	Fitting - 1 NPT Street Elbow 90° Galvanized
56	1	5018378	Hose - 1-1/2 x 56" Crossover
57	1	5019658	Fitting - 1 1/2 MPT x 1 1/2" HB 90° w/1/4 Nyl.
58	4	11332	Dipped Clamp - 1 1/2"
59	2	5020025	Hose - 3/4 x 132" Water
60	2	5018348	Bracket - Water Tank Holddown
61	14	10306	Lock Washer - 5/16
62	1	505407	Water Manifold Assembly - 3 Station
63	1	20861	Fitting - 3/8 MPT x 3/4 HB Brass
64	1	5015571	55 PSI Relief Valve
65	1	10814	Fitting - 1/2 NPT x 3/8 NPT Reducer
66	16	10117	Bolt - 5/16-18 x 1 HHCS
67	1	20895	Fitting - 1/2 NPT Male Branch Tee
68	36	10305	5/16" Flat Washer
69	1	20672	Fitting - 1/2 MPT x 3/4 HB Straight Nylon
70	4	12938	Valve Body Clamp
71	1	10357	1/4" Toothed Dished Washer
72	4	10260	Nut - 8-32 Kept
73	1	5018053	Water Manifold Mount
74	(Part of Hose Assy)	30683	Fitting - 1/4 FPT Swivel Nut
75	(Part of Hose Assy)	30682	Fitting - 1/4 HB Insert
76	1	30681	Fitting - 1/4 NPT Close Nipple
77	1	505395	3 Valve Assembly - Remcor
78	1	30833	Fitting - 1/2 MPT x 1/4 SAE 90°
79	1	20855	Fitting - 1/4 JIC Cap
80	4	40124	Screw - 8-32 x 2-1/2 Pan Head
81	1	30191	Bolt - 1/2-13 x 6-1/2 HHCS
82	1	10231	Nut - 1/2-13 Top Lock
83	1	505812	Cat Pump 290 w/Clutch
84	1	501834	Base - Pump Bracket Assembly (CAT 290)
85	1	10201	Nut - 1/2-13 Hex
86	1	10312	1/2" Lock Washer
87	14	10205	Nut - 5/16-18 Hex
88	1	501761	Bolt - 1/2-13 x 4 All Thread
89	1	10751	Fitting - 1/4 Water x 168"
90	1	5018049	Hose - 3/4 x 28" Water
91	1	505855	Hose Assembly - 1/4 x 168" Water
92	1	20866	Fitting - Male Quick Disconnect Coupler
93	1	10662	Fitting - 3/8 NPT Plug Galvanized
94	1	20865	Fitting - Quick Coupler Female x FPT Brass
95	1	10729	Fitting - 1/4 NPT Plug
96	2	30104	Screw - 1/4-20 x 3/4 Roll
97	4	10321	6mm - Lock Washer
98	1	501838	Relief Valve CAT 290
99	1	508608	7" Sheave/Clutch Assy. Flange Mount
100	1	501836	Water Dain Mount
101	1	12267	U Bolt - 1/4-20 x 1x 1-3/4
102	1	40162	Bolt - 8 mm x 30 mm HHCS Grade 10.9
103	1	5019467	Lo Rego Spacer
104	2	10274	Nut - 1/4-20" Hex Kept
105	1	20806	Fitting - 3/8" Hex Coupling


ITEM	QTY	PART NO	DESCRIPTION
106	2	5021569	Adapter Plate - Clutch
107	1	30864	Fitting - 3/8 JIC x 3/8 MPT Straight
108	2	5020017	Water Tank Tie Down Bracket
109	4	10110	Bolt - 1/4-20 x 3/4 HHCS
110	1	5018478	Mount Bracket - Hi/Lo Washdown Manifold
111	10	11335	Hose Clamp - 7/8" to 1-3/4"
112	1	13297	5mm x 35 MML Round End Machine Key
113	2	40617	Fitting - 1" NPT x 1" HB 90° Nylon
114	1	10304	1/4 Lock Washer
115	2	5020026	Hose - 1" x 10" Water
116	1	501971	Water Pump Assembly - CAT 290
117	2	20609	Fitting 1" MPT x 1" HB 90° Nylon
118	1	10203	Nut - 1/4-20 Hex
119	2	5014122	Hose - 1" x 48" Water
120	1	506449	Lo Rego Subassy. 435/210 Washdown
121	1	506879	Steel Wire Lanyard Assy
122	1	10720	Fitting - 3/8 JIC Cap
123	1	40618	Fitting - 1 HB Tee
124	1	800360	Hose Assy. - 3/8 x 24" Water
125	1	11242	Belt - Cat Pump
126	1	5019470	Mount Bracket
127	1	30675	Fitting - 1" NPT x 45 Elbow Galv.
128	(Part of DST System)	10671	Fitting - 1" NPT x King Nipple
129	1	22283	3 Way Valve - 1.0" NPT King Nipple
130	2	11356	U-Bolt - 1 3/8 DIA
131	(Part of DST System)	506984	Water Fill Subassembly
132	1	30608	Fitting - 1 Close Nipple Nylon
133	1	30813	Fitting - 1/2 FPT X 3/8 MPT Str.
134	1	10727	Fitting - 1/2 NPT x 3/8" JIC 90°
135	3	20655	Fitting - 1/2 MPT x 3/4 HB 90° Nylon
136	(Part of DST System)	5020033	Hose - 1" x 110" Water
137	1	504806	Spray Gun Assembly
138	1	504815	36" Lance Assembly
139	1	12380	Spray Tip - 1/4 x 1/8 FPT
140	1	12844	Spray Tip Protector - 1/4 x 1/8 FPT
141	1	12845	36" Plated Lance Tube
142	1	30815	Fitting - 1/4 FPT Screw Coupler
143	1	30817	Fitting - 1/4 MPT - Connecting Nipple
144	1	12385	Hose/Gun Handle
145	1	20866	Fitting - Quick Coupler Male x FPT
146	1	12381	Washdown Hose Assembly - 20'
147	1	10818	Fitting - 1/4 SAE x 1/4 NPT 90°
148	2	20810	Dual Swv. Fan Nozzle w/11003 Tip
149	1	13107	Cut Washer - ..45 I.D. x .875 O.D.
150	4	20152	Bolt - 6mm-1.0 x 25mm HHCS
151	1	5018451	Side Mount (RH) - Cat Pump
152	28	10307	3/8 - Flat Washer
153	4	10128	Bolt - 3/8-16 x 1 HHCS
154	14	10308	3/8 - Lock Washer
155	10	10129	Bolt - 3/8-16 x 1 1/4 HHCS
156	1	505804	Base Mount Plate Weldment - Cat Pump
157	14	10209	Nut - 3/8-16 Hex
158	1	5018452	Side Mount (LH) Cat Pump
159	1	20826	Fitting - 1/4 NPT Drain Cock
160	2	509168	Lance Storage Assembly

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ITEM	QTY	PART NO	DESCRIPTION
161	2	5022025	Wash Lance Storage Bracket
162	4	13497	Spring Gripper Clip
163	1	5016527	Hose - 3/4" Water x 82"
Not Shown	1	505723	Wire Harness - Liquid Level Sensor
Not Shown	1	12108	Switch - On/Off Sealed
Not Shown	1	504756	Wire Harness - Hi/Lo Washdown - CAT 290 Pump
Not Shown	1	5012987	Mount - Switch
Not Shown	1	5015628	Guard - Switch

HIGH PRESSURE WASH DOWN OPTION

Sweepers equipped with the optional “Hi/Lo” Dust Control System are provided with an attachable high pressure wash down wand and hose assembly for in the field high pressure cleaning of critical sweeper areas such as the hopper screen. The wash down wand nozzle can also be provided with an extension to assist cleaning of shallow catch basins in conjunction with the Auxiliary Hand Hose option.

WARNING: The wash down wand delivers water spray up to 1000 PSI (69 Bar).
 **DO NOT point the spray nozzle at face or any other body part!**
DO NOT attempt to use the spray wand to wash body or serious injury will result!

OPERATION

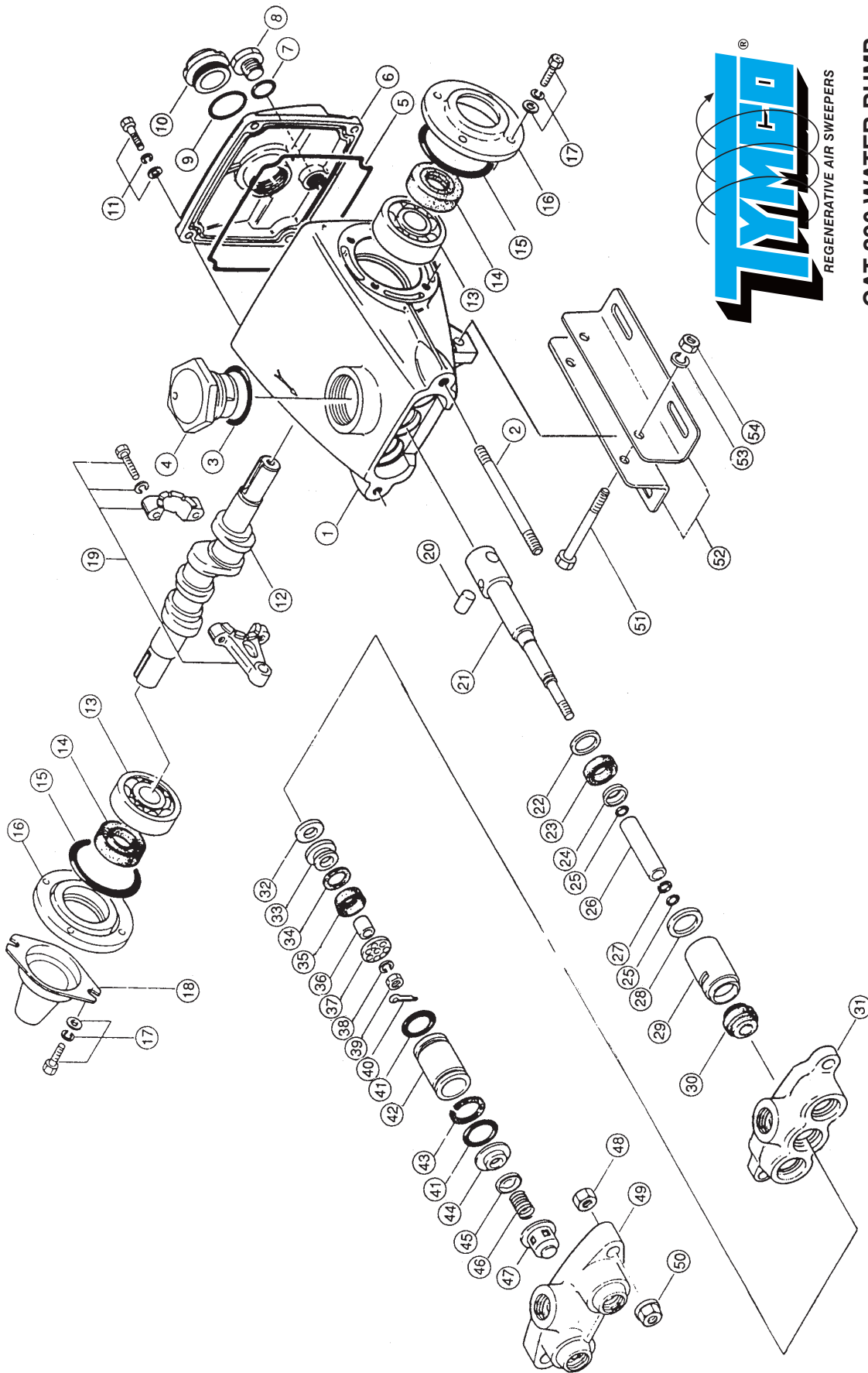
1. Make certain water tank is full before using the wash down system.
2. Turn the exterior water pump control switch located on the right-hand side of the sweeper to the “OFF” position.
3. Disconnect the water manifold hose from the quick disconnect hose connector also located on the right-hand side of the sweeper and attach the wash down wand hose.
4. Start sweeper auxiliary engine and set throttle at 1800 RPM.
5. Turn the control console main water switch “ON”.
6. Hold wash down wand and turn “ON” the exterior water pump switch.
7. Pull the wash down trigger control to apply high pressure water spray.
8. To disconnect the wash down wand, turn “OFF” the exterior water pump switch stopping the pump. Pull the wand trigger to release any trapped pressure and disconnect the wand hose.
9. Reconnect the water manifold hose and turn the exterior water pump switch to the “ON” position.

PRESSURE SETTING: Wash Down System

The Hi/Lo wash down wand pressure is checked by installing a 2000 PSI (138 Bar) test gauge at the high pressure relief valve 1/4" JIC test port. Follow above procedure to install and operate wash down wand. When spraying the wand read test gauge. Proper pressure is 1000 PSI (69 Bar) at 1800 engine RPM. The high pressure relief valve can be adjusted for minor pressure variances.

NOTE: Spray wand must have proper spray tip size for correct pressure and flow!

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**CAT 290 WATER PUMP
(M00319)**

**MODEL 435/DST-4
CAT 290 WATER PUMP ASSEMBLY
DWG-M00319**

ITEM	QTY	PARTS NO	DESCRIPTION
	1	501971	Cat 290 Water Pump Assembly
	1	502973	Cat 290 Water Pump Only
1	1	12428	Crankcase, 4 Screw-Small Cap
2	2	12429	Stud (M8 X 82)
3	1	12430	O-Ring, Oil Filler Cap
4	1	12431	Oil Filler Cap
5	1	12432	O-Ring, Crankcase Cover
6	1	12433	Crankcase Cover
7	1	12435	O-Ring, Drain Plug
8	1	12436	Drain Plug
9	1	12476	Flat Flex Gasket, Oil Gauge
10	1	12434	Bubble Oil Gauge
11	4	12437	Sems Comb Head Screw (M6 X 20)
12	1	12438	Crankshaft
13	2	12439	Bearing
14	2	12440	Oil Seal
15	2	12441	O-Ring, Oil Seal Case
16	2	12442	Oil Seal Case
17	8	12443	Sems Comb Head Screw (M6 X 16)
18	1	12477	Shaft Protector
19	3	12444	Connecting Rod
20	3	12446	Piston Pin
21	3	12445	Piston Rod
22	3	12447	Seal Washer
23	3	12448	Oil, Seal
24*	3	12449	Barrier Slinger
25*	6	12450	O-Ring Sleeve
26*	3	12452	Sleeve
27	3	12451	Back-Up Ring, Sleeve
28	3	12453	Seal Washer
29	3	12454	Seal Retainer
30*	3	12456	Prrrm-A-Lube Seal
31	1	12455	Inlet Manifold
32	3	12457	Inlet Valve
33	3	12458	Bac-Cup Piston
34	3	12459	Bac-Cup Ring
35**	3	12460	Cup
36	3	12461	Piston Spacer
37	3	12462	Piston Retainer
38	3	12463	Conical Washer - SS
39	3	12464	Nut - SS
40*/**	3	12465	Cotter Pin
41**/**	6	12467	O-ring, Cylinder
42	3	12466	Cylinder
43	3	12468	Back-up Ring, Cylinder
44***	3	12473	Discharge Valve Seat
45***	3	12472	Valve
46***	3	12471	Valve Spring
47***	3	12470	Valve Spring Retainer
48	2	12474	Hex Nut

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ITEM	QTY	PART NO	DESCRIPTION
49	1	12469	Discharge - Manifold
50	2	12475	Hex Flange Nut
51	2		Hex Cap Screw - 5/16 X 2-3/4
52	2	12478	Angle Rail (Standard)
	2	8010731	Angle Rail (FHD)
53	2		Split Lock Washer - 5/16
54	2		Hex Nut - 5/16
#		12088	CAT Pump Oil (Not Shown)
*	1	5013940	Sleeve and Seal Kit
**	1	5013939	Cup Kit
***	1	5013941	Valve Kit - Q.V.

NOTE: Asterisk(s) denotes repair kit and/or parts included in repair kits. TYMCO, Inc. does not stock base parts - Repair Kits only.

- Pump manufacturer recommends 30 weight non-detergent premium hydraulic oil.
Pump Oil General Maintenance

Good lubrication is the easiest, most efficient and least expensive preventative maintenance for your pump. Change initial fill after 50 hours of running time. Change oil every 3 months or at 500 hour intervals thereafter.

SERVICE AND MAINTENANCE HIGH PRESSURE PUMP (501971)

Before disassembling, clean dirt build up or any foreign matter from outside of pump.

VALVE ASSEMBLY SERVICE

TO DISASSEMBLE:

1. Remove the flange nuts securing the discharge manifold to the crankcase of the pump.
2. Support the discharge manifold and tap from the backside with a soft mallet to separate from the crankcase and gradually work free from cylinders.
3. The valve seat, valve, spring and retainer will now fall free from discharge manifold when inverted.

TO ASSEMBLE:

1. Replace retainers in manifold chambers.
2. Insert springs into the center of retainers.
3. Inspect valves for wear, ridges or pitting and replace as required.
4. Insert valves over springs with recessed (dished) side down.

5. Inspect the seating surface of the valve seats and replace if excessively worn.
6. Insert valve seats into discharge manifold chambers.
7. Lubricate O-rings on cylinders and carefully position discharge manifold back onto pump.
8. Install flange nuts and torque to 125 in. lbs. (14 Nm).

SLEEVE AND SEAL SERVICE

TO DISASSEMBLE:

1. Remove discharge manifold and piston assemblies as previously described.
2. Remove inlet manifold containing seals.
3. Grasp sleeves and with a pulling and twisting motion remove the sleeves from the piston rods.

NOTE: Do not use pliers or similar tools that would mar the sleeves.

4. Remove seal retainers.
5. Remove and replace O-rings and back-up rings, if worn.
6. Place inlet manifold on pair of clearance blocks with CRANKCASE SIDE DOWN and drive out old seals.

TO ASSEMBLE:

1. Invert inlet manifold with CRANKCASE SIDE UP to install seals. After lubricating its circumference, install seals with GARDER SPRING DOWN.
2. Lubricate new O-rings and back-up rings and slip onto piston rod. Install the first O-ring in the groove nearest crankcase on the piston rod. Position back-up ring against the shoulder in front of the first O-ring. Install second O-ring.

NOTE: Exercise caution in slipping O-rings off the threaded piston rod ends.

3. Immerse sleeves in oil and carefully twist and push them onto rods. (Machined counter bore end first.)
4. Install seal retainers.
5. Carefully install inlet manifold onto pump assuring proper position of seals.
6. Reassemble piston assemblies and discharge manifold as previously described.

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PUMPING SECTION SERVICE

TO DISASSEMBLE:

1. Remove discharge manifold as previously described.
2. Grasp cylinders by hand and with an up and down motion, pull cylinders from inlet manifold.
3. Remove cotter pins, nuts and washers from piston rod.
4. Remove retainer, spacer and piston/cup assembly.
5. Remove inlet valve.

TO ASSEMBLE:

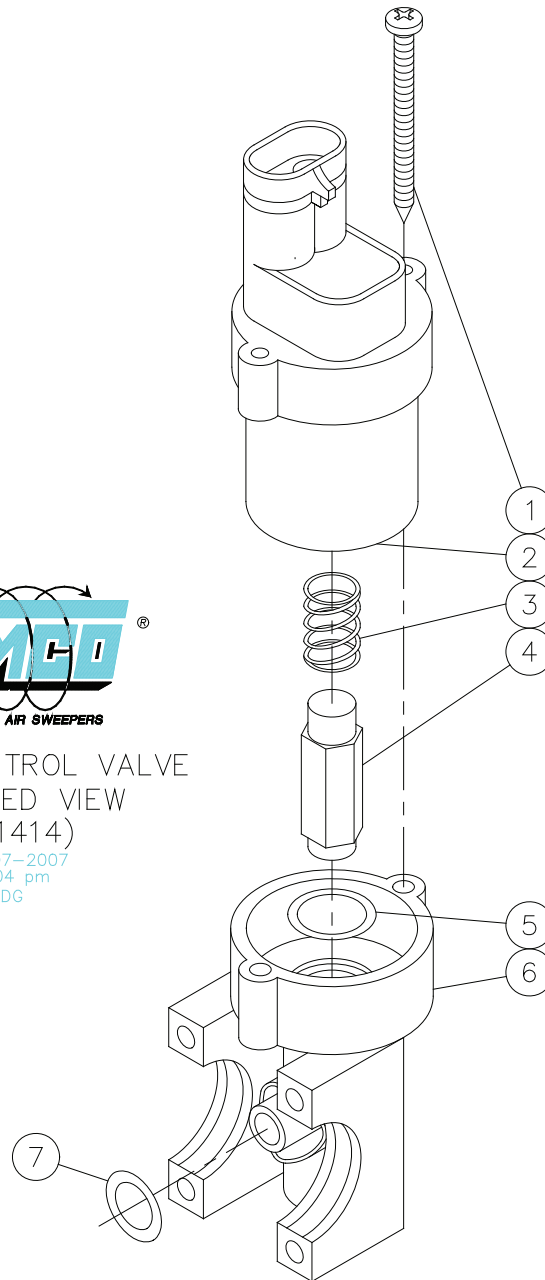
1. Inspect the inlet valves for pitting, grooves, or scale. Inlet valves may be lapped using 240 grit sandpaper on a flat surface.
2. Inspect seating surface of pistons and lap using 240 grit sandpaper as required.
3. Slip Bac-cup rings onto pistons. Lubricate cups and install on pistons squarely.
4. Lubricate pistons and install onto rods.
5. Install piston spacers and retainers on rods.
6. Install washers, thread on nuts and torque to 60 in. lbs. (6.8 Nm).
7. Install new stainless steel cotter pins and turn ends under.
8. Inspect cylinder walls for scoring or etching. Replace if required.
9. Lubricate cylinders and replace O-rings and back-up rings if worn or damaged. Carefully slip cylinders over rod ends and push into inlet manifold in their original positions.
10. Position discharge manifold onto pump, install flange nuts and torque to 125 in. lbs. (14 Nm.)

**— FOR SAFETY —
STOP ALL ENGINES AND SET PARKING
BRAKE BEFORE SERVICING
— READ YOUR MANUAL —**



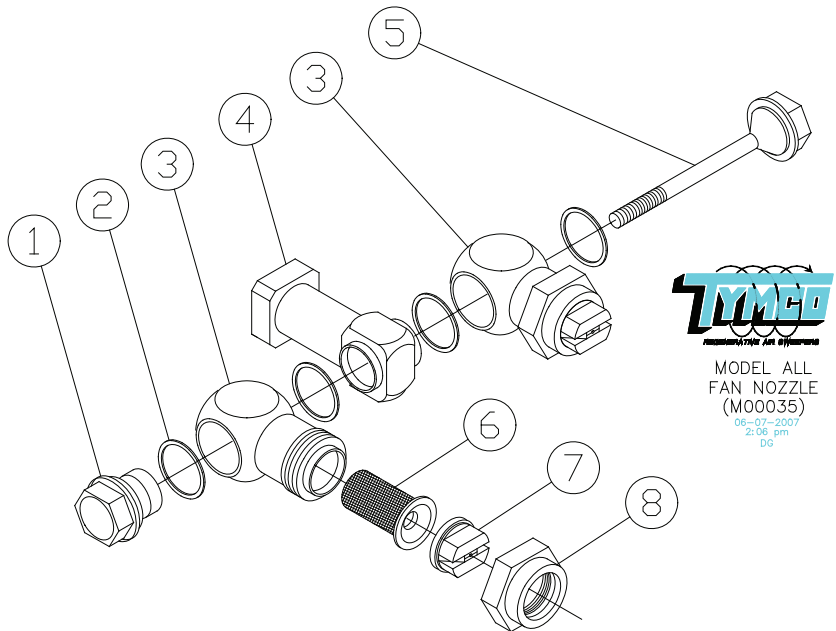
WATER CONTROL VALVE
EXPLODED VIEW
(M01414)

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WATER CONTROL VALVE PARTS LIST
DWG-M01414

ITEM	QTY	PART NO	DESCRIPTION
	1	12962	REMCOR Valve Assembly
1	2		Screw - #6 x 1-3/4
2	1		Coil
3	1		Spring
4	1		Plunger
5	1		O'Ring
6	1		Valve Body
7	1		O'Ring



**TYMCO MODEL 435/DST-4
FAN NOZZLE PARTS LIST
DWG-M00035**

ITEM	QTY.	PART NO.	DESCRIPTION
	1	20810	Double Swivel Fan Nozzle Assembly
1	1		Nut
2	4		Shim
3	2		Swivel Body
4	1		Tee Swivel
5	1		Tie Bolt
6	2	10837	Strainer
7	2	20809	Tip - 11003
8	2	10838	Cap

“CAT” WATER SYSTEM K

TABLE OF CONTENTS

SECTION K	PAGE
Function. . . . .	.K-1
Operation & Components. . . . .	.K-1
Winterization . . . . .	.K-3
Troubleshooter's Guide. . . . .	.K-5
CAT Water System Drawing . . . . .	.K-7
CAT Water System Parts List. . . . .	.K-8
Pump Drawing . . . . .	.K-11
Pump Parts List. . . . .	.K-12
Pump Service. . . . .	.K-13
Water Control Valve. . . . .	.K-16
Fan Nozzle Drawings and Parts Lists. . . . .	.K-17

FUNCTION

The TYMCO dust control system is designed to maximize dust suppression without minimizing sweeping efficiency. The REGENERATIVE AIR sweeping system is designed to remove fine particulates from the sweeping surface. Mechanical sweepers flood the surface creating a paste out of the fines, thereby, leaving them behind stuck to the pavement as a film. The TYMCO dust control system injects water spray into dust generation areas controlling the dust at its source which allows the fine particulates on the sweeping surface to be easily removed by the unique REGENERATIVE AIR sweeping system.


The dust control system is responsible for suppressing airborne dust created by a properly functioning sweeper under normal sweeping conditions. Excessively dusty sweeping is often not the fault of the dust control system, but that of a poorly functioning sweeper. It is extremely important for proper dust suppression that the sweeper pick-up head curtains be of adequate length, the hopper is properly sealed and that the pressure and suction tubes are in good condition. Even a small leak causes excessive dust and poor sweeping performance.

NOTE: This water system is NOT designed to flush the surface.

OPERATION AND COMPONENTS FLOW OF WATER AND FUNCTION OF MAJOR COMPONENTS

WATER TANKS/WATER LEVEL

The Model DST-4 utilizes two 38.5 gallon (145.7 Liter) water tanks which can be filled by connecting the fill hose to a fire hydrant or a garden hose if a fire hydrant is not available.

 **CAUTION:** The plastic water tank can be damaged by heat or fire. Protect the tank if nearby welding or cutting torch operations are necessary.

SUCTION FILTRATION

The water is drawn through a port at the bottom of the tank to a strainer located in the suction hose between the tank and the pump to prevent foreign particles from entering the system.

WATER PUMP (High Pressure-Belt Drive)

This pump is utilized only on sweepers equipped with the Hi/Low Wash Down option. It is a high pressure/low volume pump, belt driven through a clutch/sheave off the auxiliary engine.

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WATER MANIFOLD

The water manifold assembly is located on the sweeper frame rail and consists of:

1. Electrically operated valves which control water distribution to strategically located spray nozzles. These valves are controlled by switches on the operator console in the cab.
2. A relief valve with a return line to tank.

LIQUID LEVEL SENSOR SYSTEM

The liquid level sensor system is an electronically controlled water level sensor which provides water pump protection when the water level in the tank becomes depleted. On units with the BlueLogic Control System, the sensor turns off the water pump and activates a low water indicator on the console display. In addition, a message will appear on the display and an audible chirp will sound in the cab. To silence the alarm, acknowledge the message or turn off the main water system switch. The audible alarm can be disabled using the User Settings in the console display. The liquid level sensor circuit is controlled by an electronic module that is located near the BlueLogic module on the auxiliary power unit rail. The liquid level sensor probe is usually located at the water tank suction/drain assembly.

SPRAY NOZZLES

One high volume nozzle is located in the right side wall of the hopper. There are spray mist nozzles mounted just forward of and above each gutter broom and on each side of the pick-up head. The nozzles are located in these positions to minimize airborne dust. The switches and indicator light for the water system are located on the operator console in the cab and are designated:

LEFT GUTTER BROOM WATER -	controls LH gutter broom nozzles
PICK-UP HEAD WATER -	controls pick-up head nozzles
HOPPER WATER -	controls hopper nozzle
RIGHT GUTTER BROOM WATER -	controls RH gutter broom nozzles
YELLOW LOW WATER WARNING LIGHT -	illuminates upon water depletion

OPERATION

1. Fill water tank.
2. Start auxiliary engine, lower pick-up head and set desired RPM for sweeping.
3. Turn WATER SYSTEM switch on.
4. Turn on selector switches for desired water distribution.

WINTERIZATION PROCEDURE

The TYMCO water system requires freeze protection during freezing weather. Your TYMCO BlueLogic® control system will assist you in successfully winterizing the water system.

The water system can be winterized using RV and marine antifreeze or compressed shop air. Using antifreeze will require 2 gallons of RV and marine antifreeze, a 6 foot length of $\frac{3}{4}$ inch water hose and a bucket. Using air requires special tools to clamp off the suction line and inject regulated compressed air into the inlet of the water pump. To winterize the water system, follow this procedure:

1. Turn on the sweeper ignition and do NOT start the auxiliary engine.
2. Press the menu button to access the page select menu.
3. Select Service Tools then Water System Winterization.
4. On the Winterization page, press the Winterize Water System button.
5. Open the water tank drain valve and wait for the water to drain. If equipped with Pressure Inlet Water Injection, turn it on and open the ball valve near the pressure inlet. Press Next.
6. Turn on all water solenoid switches. The main water switch can remain off. Press Next.
7. Select the winterization method to use: Antifreeze or Air. For Antifreeze go to step 8, for air go to step 15.



**MENU
BUTTON**

Antifreeze Procedure:

8. Loosen the hose clamp and remove the suction hose from the inlet to the water strainer. Install a 5 foot, $\frac{3}{4}$ inch diameter hose on the strainer fitting. Place the other end of the hose in a bucket filled with 2 gallons of RV and marine antifreeze. Press Next.
9. Start the auxiliary engine.
10. Make sure the suction hose is securely submerged in the antifreeze. Press Next to turn on the water pump and water solenoids and begin circulating antifreeze through the system.
11. The pump will run for 30 seconds. Inspect each water nozzle to ensure the antifreeze is spraying from all nozzles. If equipped with a hose reel, manually open the wash down line until antifreeze is sprayed from the wash hose.
12. If additional time is needed, refill the bucket with antifreeze and press Repeat. If all lines are filled with antifreeze, press Next.
13. Remove the antifreeze hose from the strainer and reconnect the original hose.
14. The water system is winterized.

Air Procedure:

15. Clamp off the suction hose between the water tank and suction strainer.

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16. Apply a 30 to 40 psi regulated compressed air supply to the inlet of the water pump. Press Next.
17. Allow time for the water lines to purge. If equipped with a hose reel, manually open the wash down line until air is blowing from the wash hose. Press Next when all nozzles are blowing air.
18. Start the auxiliary engine. The water pump and solenoids will stay engaged for a few seconds to purge all three cylinders of water and then shut off.
19. Remove the shop air supply and unclamp the suction hose.
20. Drain the pre-filter bowl (Don't lose rubber seal!).
21. The water system is winterized.

Note: An optional air purge kit is available which simplifies using shop compressed air to purge the water system. For more information on this kit, see the Option Section of this manual.

Once completed, the water system will be electronically tagged as winterized. The winterized icon will be shown on the main page to indicate the water system is winterized. The winterization tag will be removed when the presence of water is sensed in the system. The winterization and de-winterization events will be logged in the Water System Winterization Log. To access the log, go the Winterization Page and press the Winterization History button.



**WINTERIZED
ICON**



WINTERIZATION MENU

NOTICE: The software interface is a tool to successfully winterize the system. It is the operator's responsibility to ensure the procedure is followed and the system is purged of water and successfully winterized.

WATER SYSTEM TROUBLESHOOTER'S GUIDE

PROBLEM	CAUSE	SOLUTION
Low pressure	Worn nozzles	Replace with nozzles of proper size.
	Belt slippage	Tighten or replace, use correct belt.
	Air leak in inlet plumbing	Disassemble, reseal and reassemble.
	High pressure relief valve stuck open or improperly adjusted	Clean and adjust relief valve, check for worn and dirty valve seats.
	Inlet suction strainer clogged	Clean, check more frequently.
	Fouled or dirty inlet or discharge valves	Clean inlet and discharge valve assemblies.
	Worn inlet or discharge valves	Replace worn valves, valve seats.
Leaky discharge hose		Repair or replace.
	Pump runs extremely rough, pressure low	Clean out foreign material, replace worn or damaged cups or valves.
Inlet restrictions and/or air leaks. Damaged cup or stuck inlet or discharge valve		
Water leakage from under the inlet manifold	Worn inlet manifold seals	Install new seals.
	Leaking sleeve o'rings	Replace o'rings.
Oil leaking between crankcase and pumping section Oil leaking in the area of crankshaft	Worn crankcase piston rod seals	Replace crankcase piston rod seals.
	Worn crankshaft seal or improperly installed oil seal retainer o'ring	Remove oil seal retainer and replace damaged o'ring and/or seals.
	Bad bearing	Replace bearing.
Excessive play in the end of the crankshaft pulley	Worn main bearing from excessive tension on drive belt	Replace bearing, properly tension belt.
Water in crankcase	May be caused by humid air condensing into water inside the crankcase	Change out in 3 months or 500 hour intervals using 30 weight non-detergent premium hydraulic oil with anti-wear and rust inhibitor additives.

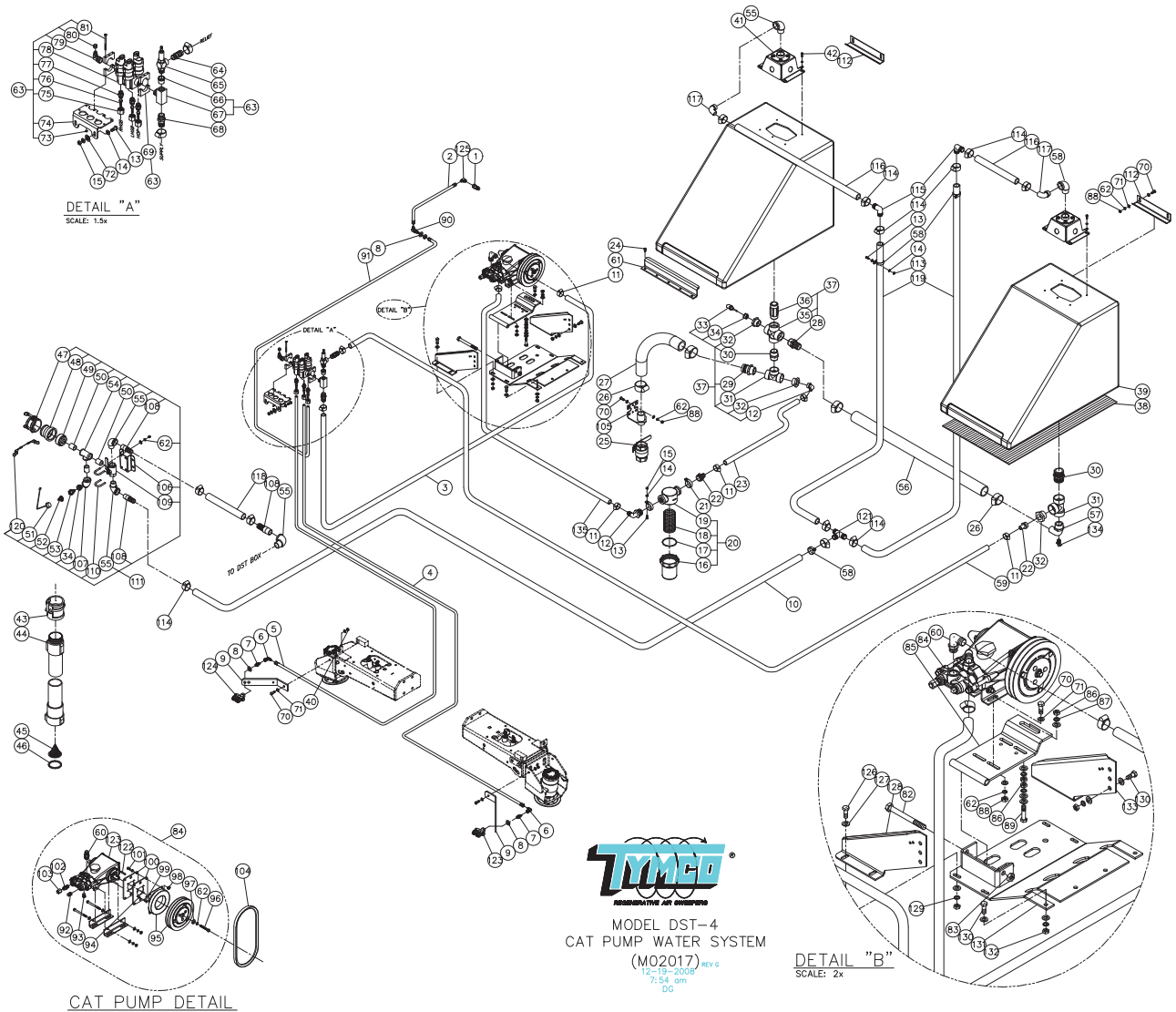
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PROBLEM	CAUSE	SOLUTION
Water in crankcase (cont.)	Leakage of inlet manifold seals and/or piston rod sleeve o'rings	Replace seals and/or sleeve o'rings.
Oil leaking from underside of crankcase	Worn crankcase seals	Replace seals.
Oil leakage from drain plug	Loose drain plug or worn drain plug o'ring	Tighten drain plug or replace o'ring.
Loud knocking noise in pump	Clutch assembly loose	Tighten.
Frequent or premature failure of the cups	Broken or worn bearing	Replace bearings.
	Scored rods or sleeves	Replace rods and sleeves.
	Damaged or worn cylinders	Replace cylinders.
	Running pump dry	DO NOT run pump without water. Check for suction leaks in the water suction line.
Pump will not run when adequate water is available in tank and console toggle switch is on	Defective console toggle switch	Replace switch.
	Water system fuse blown	Replace fuse and trouble shoot for electrical problem.
	Clutch not engaging	Check electrical circuit and pump ground.
	Debris collected in suction manifold/drain assembly	Open drain valve and flush thoroughly if necessary, partially disassemble and flush mud, wet sand, etc.
	Electrical problem	Check liquid level sensor relays at control console.
Pump continues to run for few seconds after water tank is depleted	Normal condition, result of slosh filter circuit in liquid level control module	None required.

AIR PURGE NOTICE

Sweeper dust control systems with liquid level sensor probe will experience pump failure due to piston cup wear if air purge valve is left in purge position when water system pump is turned on with water in tank(s). The liquid level sensor will allow the pump to run, but pump draws air through purge valve causing pump piston cups to fail due to friction. Dry run time of piston cups is approximately five minutes.

Always check purge valve position before running the system.



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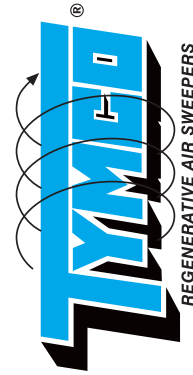
TYMCO MODEL DST-4 CAT PUMP WATER SYSTEM PARTS LIST DWG-M02017

ITEM	QTY	PART NO	DESCRIPTION
	1	506985	CAT Pump Water System
1	1	30826	Hopper Spray Nozzle - 1/4 NPT Wall Mount
2	1	507096	Hose Assembly - 1/4 x 75" Water
3	1	5022259	Hose - 3/4 x 40" Water
4	1	506030	Hose Assembly - 1/4 x 144" Water
5	1	505453	Hose Assembly - 1/4 x 108" Water
6	2	30875	Fitting - 1/4 SAE - 1/4 Fem. Swv. 90°
7	2	20829	Fitting - 1/4 JIC x 1/4 NPT Str.
8	6	10311	1/2" Flat Washer
9	2	5020173	Gutter Broom Water Nozzle Bracket
10	1	5020027	Hose - 1 x 160" Water
11	8	11318	Hose Clamp
12	2	20658	Fitting - 1 NPT x 3/4 HB 90°
13	9	10111	Bolt - 1/4-20 x 1 HHCS
14	15	10303	1/4" Flat Washer
15	4	10246	Nut - 1/4-20 Top Lock
16	1	5021282	Bowl - Strainer
17	1	5015315	Gasket - Strainer
18	1	5015314	Screen - Strainer
19	1	5021283	Cap - Strainer
20	1	508346	Strainer Assembly
21	3	11362	Clamp - 1-1/8" Dipped
22	2	20682	Fitting - 1 MPT x 3/4" HB Straight (Nylon)
23	1	5018375	Hose - 3/4 x 92" Water
24	10	10104	Screw - 5/16-18 x 3/4 Tap
25	1	5012780	Ball Valve - 1-1/2 Full Port
26	4	11320	Hose Clamp - 1 1/2 - 2 3/8
27	1	20901	Hose Elbow - 2 I.D. x 9.5"
28	1	30614	Fitting - 1-1/2 MPT x 1-1/2 HB Nylon
29	1	30698	Fitting - 1-1/2 MPT x 2 HB Straight Nylon
30	1	30611	Fitting - 1-1/2 MPT Close Nipple Nylon
31	1	30612	Fitting - 1-1/2 FPT Tee Nylon
32	1	30606	Fitting - 1-1/2 x 1 Reducer Bushing Nylon
33	1	11748	Liquid Level Sensor
34	1	20893	Fitting - 1 MPT x 3/8 FPT Reducer
35	1	30658	Fitting - 1-1/2 FPT Cross Nylon
36	1	40612	Fitting - 1-1/2 x 4 Nipple Polypropylene
37	1	506505	Water Drain Subassembly from Tank
38	2	5018389	Water Tank Mat
39	2	505708	38.5 Gallon Water Tank
40	18	10229	Nut - 5/16-18 Top Lock
41	2	508532	Air Gap Subassembly
42	8	40130	Bolt - 1/4-20 x 1/2 HHCS Brass
43	1	12540	Coupler - Female x FNPT Deluge
44	1	501711	Filler Hose - Water System
45	1	5012933	Strain - Water Fill
46	1	12541	Gasket - Fire Hose
47	1	12539	Cap - Quick Coupler
48	1	12538	Adapter - Male x FNPT
49	1	20665	Fitting - 2-1/2 x 1 Reducer Bushing Galvanized
50	2	20606	Fitting - 1" Close Nipple Galvanized

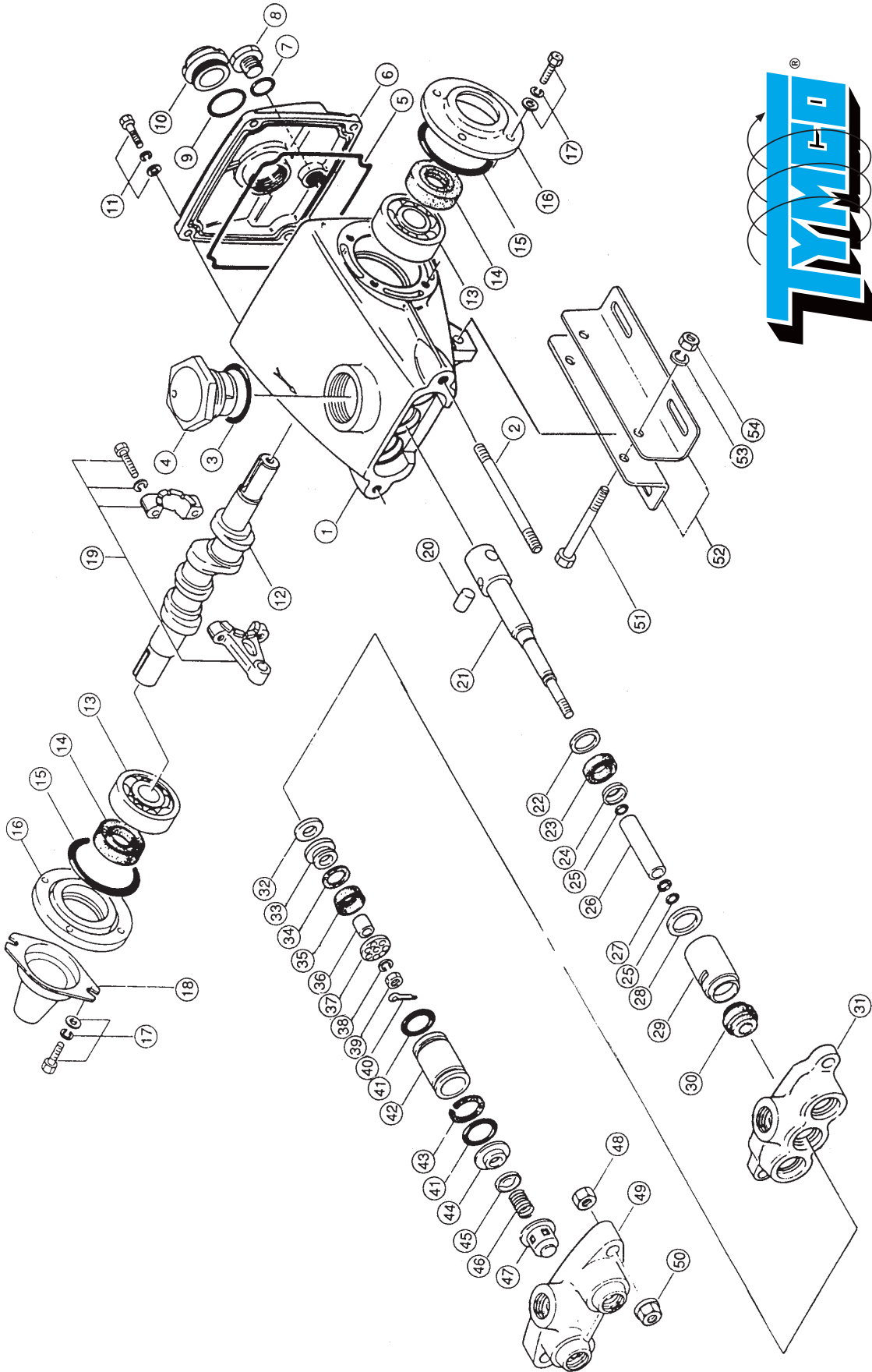
ITEM	QTY	PART NO	DESCRIPTION
51	1	10820	Plug - 3/4 Male Garden Hose
52	1	20803	Screen/Washer Garden Hose
53	1	20802	Fitting - Female Garden Hose Swivel
54	1	10689	Fitting - 1 Tee Galvanized
55	2	20666	Fitting - 1 NPT Street Elbow 90° Galvanized
56	1	5018378	Hose - 1-1/2 x 56" Crossover
57	1	5019658	Fitting - 1 1/2 MPT x 1 1/2" HB 90° w/1/4 Nyl.
58	4	11332	Dipped Clamp - 1 1/2"
59	1	5020025	Hose - 3/4 x 132" Water
60	1	20655	Fitting - 1/2 MPT x 3/4" HB 90° Nylon
61	2	5018348	Bracket - Water Tank Holddown
62	14	10306	Lock Washer - 5/16
63	1	505407	Water Manifold Assembly - 3 Station
64	1	20861	Fitting - 3/8 MPT x 3/4 HB Brass
65	1	5015571	55 PSI Relief Valve
66	1	10814	Fitting - 1/2 NPT x 3/8 NPT Reducer
67	1	20895	Fitting - 1/2 NPT Male Branch Tee
68	1	20672	Fitting - 1/2 MPT x 3/4 HB Straight Nylon
69	4	12938	Valve Body Clamp
70	16	10117	Bolt - 5/16-18 x 1 HHCS
71	36	10305	5/16" Flat Washer
72	1	10357	1/4" Toothed Dished Washer
73	4	10260	Nut - 8-32 Kept
74	1	5018053	Water Manifold Mount
75	(Part of Hose Assy)	30683	Fitting - 1/4 FPT Swivel Nut
76	(Part of Hose Assy)	30682	Fitting - 1/4 HB Insert
77	1	30681	Fitting - 1/4 NPT Close Nipple
78	1	505395	3 Valve Assembly - Remcor
79	1	30833	Fitting - 1/2 MPT x 1/4 SAE 90°
80	1	20855	Fitting - 1/4 JIC Cap
81	4	40124	Screw - 8-32 x 2-1/2 Pan Head
82	1	30191	Bolt - 1/2-13 x 6-1/2 HHCS
83	1	10231	Nut - 1/2-13 Top Lock
84	1	505812	Cat Pump 290 w/Clutch
85	1	501834	Base - Pump Bracket Assembly (CAT 290)
86	1	10201	Nut - 1/2-13 Hex
87	1	10312	1/2" Lock Washer
88	14	10205	Nut - 5/16-18 Hex
89	1	501761	Bolt - 1/2-13 x 4 All Thread
90	1	10751	Fitting - 1/4 Water x 168"
91	1	505855	Hose Assembly - 1/4 x 168" Water
92	1	10662	Fitting - 3/8 NPT Plug Galvanized
93	1	10729	Fitting - 1/4 NPT Plug
94	4	10321	6mm - Lock Washer
95	1	508608	7" Sheave/Clutch Assy. Flange Mount
96	1	40162	Bolt - 8 mm x 30 mm HHCS Grade 10.9
97	1	13107	Cut Washer - ..45 I.D. x .875 O.D.
98	2	10274	Nut - 1/4-20" Hex Kept
99	4	20152	Bolt - 6mm-1.0 x 25mm HHCS
100	2	5021569	Adapter Plate - Clutch
101	4	10110	Bolt - 1/4-20 x 3/4 HHCS
102	1	30864	Fitting - 3/8 JIC x 3/8 MPT Straight
103	1	10720	Fitting - 3/8 JIC Cap
104	1	11242	Belt - Cat Pump
105	1	501836	Water Drain Mount

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ITEM	QTY	PART NO	DESCRIPTION
106	1	5019470	Mount Bracket
107	1	30675	Fitting - 1" NPT x 45° Elbow Galv.
108 (Part of DST System)		10671	Fitting - 1" NPT x King Nipple
109	1	22283	3 Way Valve - 1.0" NPT King Nipple
110	2	11356	U-Bolt - 1 3/8 Dia.
111 (Part of DST System)		506984	Water Fill Subassembly
112	2	5020017	Water Tank Tie Down Bracket
113	4	10274	Nut - 1/4-20 Kept
114	10	11335	Hose Clamp - 7/8" to 1-3/4"
115	2	40617	Fitting - 1" NPT x 1" HB 90° Nylon
116	2	5020026	Hose - 1" x 10" Water
117	2	20609	Fitting 1" MPT x 1" HB 90° Nylon
118 (Part of DST System)		5020033	Hose - 1" x 110" Water
119	2	5014122	Hose - 1" x 48" Water
120	1	506879	Steel Wire Lanyard Assy.
121	1	40618	Fitting - 1 HB Tee
122	1	13297	5mm x 35 MML Round End Machine Key
123	1	501971	Water Pump - Cat 290
124	2	20810	Dual Swv. Fan Nozzle w/11003 Tip
125	1	10818	Fitting - 1/4 SAE x 1/4 NPT 90°
126	4	10128	Bolt - 3/8-16 x 1 1/4 HHCS
127	28	10307	3/8 - Flat Washer
128	1	5018451	Side Mount (RH) - Cat Pump
129	14	10308	3/8 - Lock Washer
130	10	10129	Bolt - 3/8-16 x 1 1/4 HHCS
131	1	505804	Base Mount Plate Weldment - Cat Pump
132	14	10209	Nut - 3/8-16 Hex
133	1	5018452	Side Mount (LH) - Cat Pump
134	1	20826	Fitting - 1/4 NPT Drain Cock
135	1	5016527	Hose - 3/4" Water x 82"
Not Shown	1	505723	Wire Harness - Liquid Level Sensor



REGENERATIVE AIR SWEEPERS
CAT 290 WATER PUMP
(M00319)



K

MODEL 210 CAT 290 WATER PUMP ASSEMBLY DWG-M00319

ITEM	QTY	PARTS NO	DESCRIPTION
	1	501971	Cat 290 Water Pump Assembly
	1	502973	Cat 290 Water Pump Only
1	1	12428	Crankcase, 4 Screw-Small Cap
2	2	12429	Stud (M8 X 82)
3	1	12430	O-Ring, Oil Filler Cap
4	1	12431	Oil Filler Cap
5	1	12432	O-Ring, Crankcase Cover
6	1	12433	Crankcase Cover
7	1	12435	O-Ring, Drain Plug
8	1	12436	Drain Plug
9	1	12476	Flat Flex Gasket, Oil Gauge
10	1	12434	Bubble Oil Gauge
11	4	12437	Sems Comb Head Screw (M6 X 20)
12	1	12438	Crankshaft
13	2	12439	Bearing
14	2	12440	Oil Seal
15	2	12441	O-Ring, Oil Seal Case
16	2	12442	Oil Seal Case
17	8	12443	Sems Comb Head Screw (M6 X 16)
18	1	12477	Shaft Protector
19	3	12444	Connecting Rod
20	3	12446	Piston Pin
21	3	12445	Piston Rod
22	3	12447	Seal Washer
23	3	12448	Oil, Seal
24*	3	12449	Barrier Slinger
25*	6	12450	O-Ring Sleeve
26*	3	12452	Sleeve
27	3	12451	Back-Up Ring, Sleeve
28	3	12453	Seal Washer
29	3	12454	Seal Retainer
30*	3	12456	Prrrm-A-Lube Seal
31	1	12455	Inlet Manifold
32	3	12457	Inlet Valve
33	3	12458	Bac-Cup Piston
34	3	12459	Bac-Cup Ring
35**	3	12460	Cup
36	3	12461	Piston Spacer
37	3	12462	Piston Retainer
38	3	12463	Conical Washer - SS
39	3	12464	Nut - SS
40*/**	3	12465	Cotter Pin
41**/**	6	12467	O-ring, Cylinder
42	3	12466	Cylinder
43	3	12468	Back-up Ring, Cylinder
44***	3	12473	Discharge Valve Seat
45***	3	12472	Valve
46***	3	12471	Valve Spring
47***	3	12470	Valve Spring Retainer
48	2	12474	Hex Nut

ITEM	QTY	PART NO	DESCRIPTION
49	1	12469	Discharge - Manifold
50	2	12475	Hex Flange Nut
51	2		Hex Cap Screw - 5/16 X 2-3/4
52	2	12478	Angle Rail (Standard)
	2	8010731	Angle Rail (FHD)
53	2		Split Lock Washer - 5/16
54	2		Hex Nut - 5/16
#		12088	CAT Pump Oil (Not Shown)
*	1	5013940	Sleeve and Seal Kit
**	1	5013939	Cup Kit
***	1	5013941	Valve Kit - Q.V.

NOTE: Asterisk(s) denotes repair kit and/or parts included in repair kits. TYMCO, Inc. does not stock base parts - Repair Kits only.

- Pump manufacturer recommends 30 weight non-detergent premium hydraulic oil.
Pump Oil General Maintenance

Good lubrication is the easiest, most efficient and least expensive preventative maintenance for your pump. Change initial fill after 50 hours of running time. Change oil every 3 months or at 500 hour intervals thereafter.

SERVICE AND MAINTENANCE HIGH PRESSURE PUMP (501971)

Before disassembling, clean dirt build up or any foreign matter from outside of pump.

VALVE ASSEMBLY SERVICE

TO DISASSEMBLE:

1. Remove the flange nuts securing the discharge manifold to the crankcase of the pump.
2. Support the discharge manifold and tap from the backside with a soft mallet to separate from the crankcase and gradually work free from cylinders.
3. The valve seat, valve, spring and retainer will now fall free from discharge manifold when inverted.

TO ASSEMBLE:

1. Replace retainers in manifold chambers.
2. Insert springs into the center of retainers.
3. Inspect valves for wear, ridges or pitting and replace as required.
4. Insert valves over springs with recessed (dished) side down.

K

5. Inspect the seating surface of the valve seats and replace if excessively worn.
6. Insert valve seats into discharge manifold chambers.
7. Lubricate O-rings on cylinders and carefully position discharge manifold back onto pump.
8. Install flange nuts and torque to 125 in. lbs. (14 Nm).

SLEEVE AND SEAL SERVICE

TO DISASSEMBLE:

1. Remove discharge manifold and piston assemblies as previously described.
2. Remove inlet manifold containing seals.
3. Grasp sleeves and with a pulling and twisting motion remove the sleeves from the piston rods.

NOTE: Do not use pliers or similar tools that would mar the sleeves.

4. Remove seal retainers.
5. Remove and replace O-rings and back-up rings, if worn.
6. Place inlet manifold on pair of clearance blocks with CRANKCASE SIDE DOWN and drive out old seals.

TO ASSEMBLE:

1. Invert inlet manifold with CRANKCASE SIDE UP to install seals. After lubricating its circumference, install seals with GARDER SPRING DOWN.
2. Lubricate new O-rings and back-up rings and slip onto piston rod. Install the first O-ring in the groove nearest crankcase on the piston rod. Position back-up ring against the shoulder in front of the first O-ring. Install second O-ring.

NOTE: Exercise caution in slipping O-rings off the threaded piston rod ends.

3. Immerse sleeves in oil and carefully twist and push them onto rods. (Machined counter bore end first.)
4. Install seal retainers.
5. Carefully install inlet manifold onto pump assuring proper position of seals.
6. Reassemble piston assemblies and discharge manifold as previously described.

PUMPING SECTION SERVICE**TO DISASSEMBLE:**

1. Remove discharge manifold as previously described.
2. Grasp cylinders by hand and with an up and down motion, pull cylinders from inlet manifold.
3. Remove cotter pins, nuts and washers from piston rod.
4. Remove retainer, spacer and piston/cup assembly.
5. Remove inlet valve.

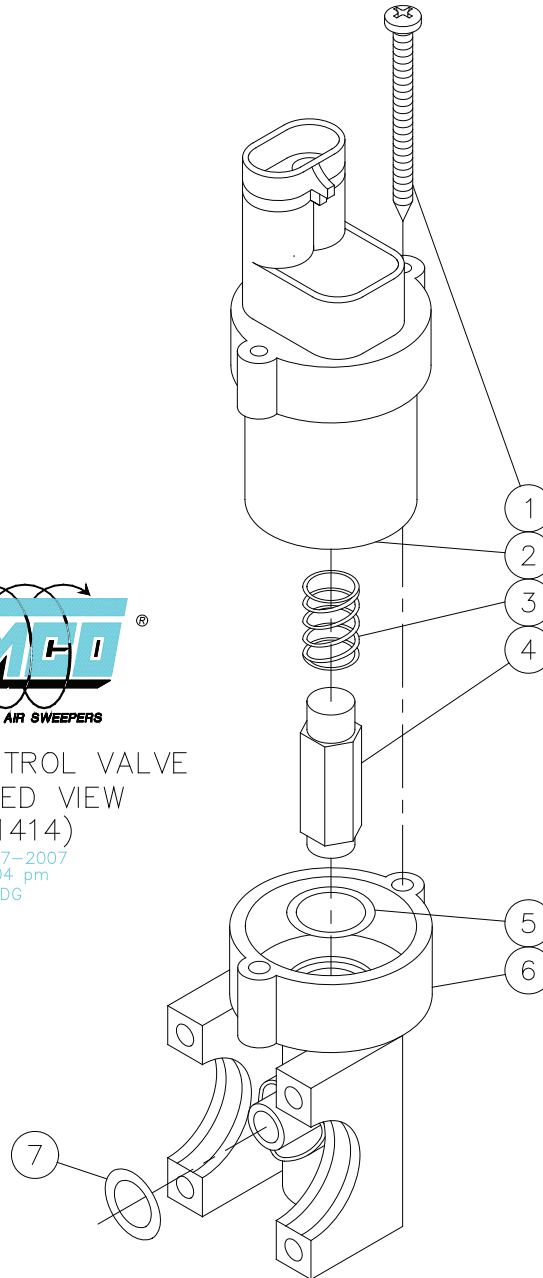
TO ASSEMBLE:

1. Inspect the inlet valves for pitting, grooves, or scale. Inlet valves may be lapped using 240 grit sandpaper on a flat surface.
2. Inspect seating surface of pistons and lap using 240 grit sandpaper as required.
3. Slip Bac-cup rings onto pistons. Lubricate cups and install on pistons squarely.
4. Lubricate pistons and install onto rods.
5. Install piston spacers and retainers on rods.
6. Install washers, thread on nuts and torque to 60 in. lbs. (6.8 Nm).
7. Install new stainless steel cotter pins and turn ends under.
8. Inspect cylinder walls for scoring or etching. Replace if required.
9. Lubricate cylinders and replace O-rings and back-up rings if worn or damaged. Carefully slip cylinders over rod ends and push into inlet manifold in their original positions.
10. Position discharge manifold onto pump, install flange nuts and torque to 125 in. lbs. (14 Nm.)

**— FOR SAFETY —
STOP ALL ENGINES AND SET PARKING
BRAKE BEFORE SERVICING
— READ YOUR MANUAL —**

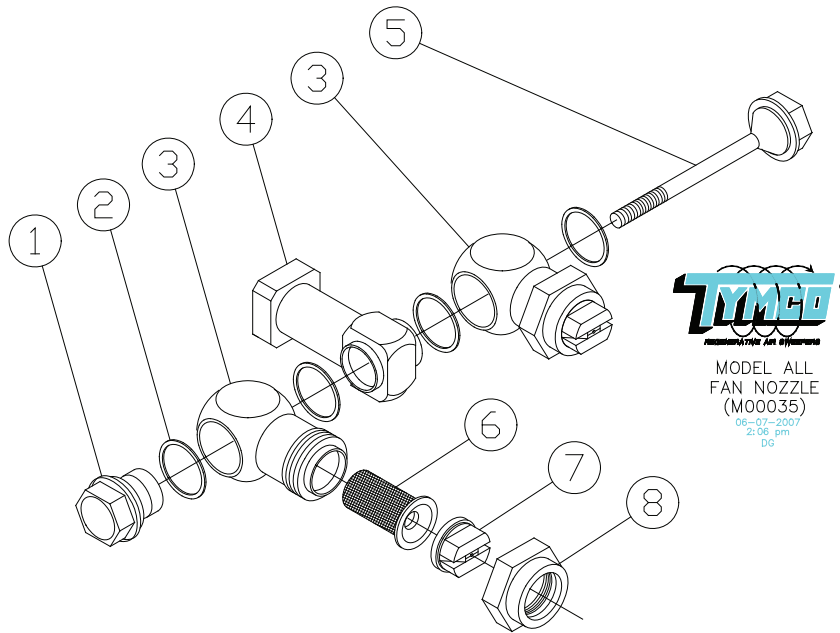


WATER CONTROL VALVE
EXPLODED VIEW
(M01414)
06-07-2007
2:04 pm
DG



**WATER CONTROL VALVE PARTS LIST
DWG-M01414**

ITEM	QTY	PART NO	DESCRIPTION
	1	12962	REMCOR Valve Assembly
1	2	12936	Screw - #6 x 1-3/4
2	1	12929	Coil
3	1	12930	Spring
4	1	12931	Plunger
5	1	12932	O'Ring
6	1	12933	Valve Body
7	1	12934	O'Ring



**TYMCO MODEL 435
FAN NOZZLE PARTS LIST
DWG-M00035**

ITEM	QTY.	PART NO.	DESCRIPTION
	1	20810	Double Swivel Fan Nozzle Assembly
1	1		Nut
2	4		Shim
3	2		Swivel Body
4	1		Tee Swivel
5	1		Tie Bolt
6	2	10837	Strainer
7	2	20809	Tip - 11003
8	2	10838	Cap

FUEL SYSTEM

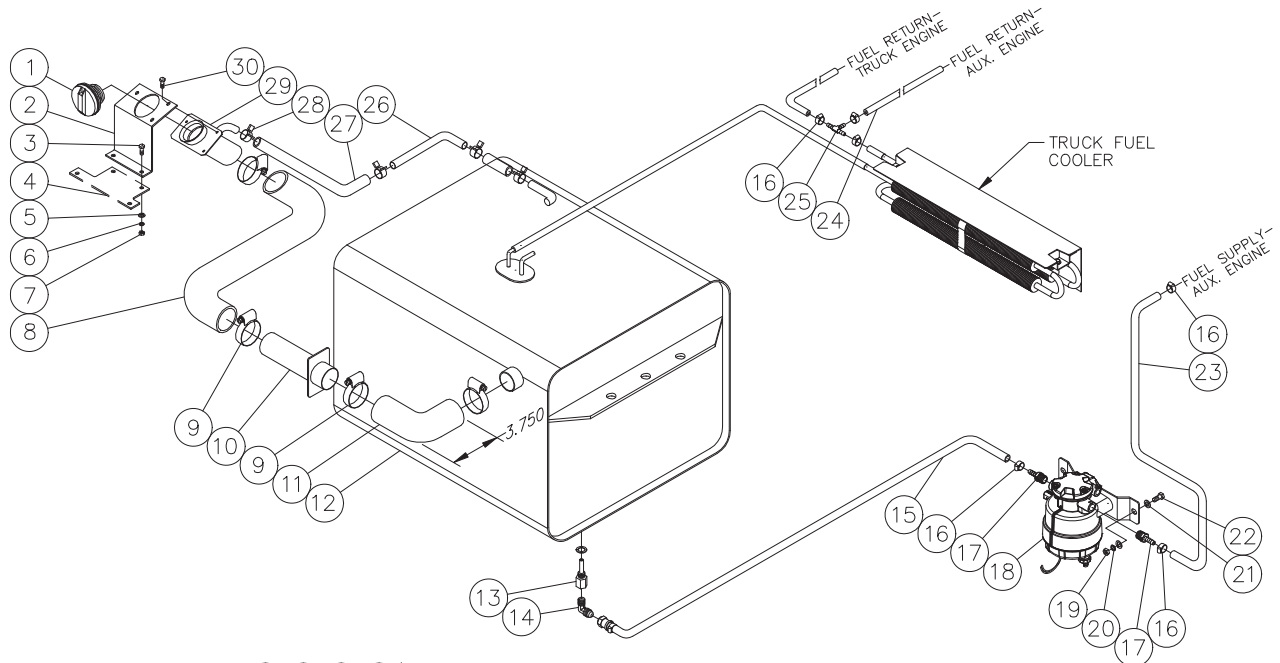
TABLE OF CONTENTS KUBOTA T4F - ISUZU

SECTION L	PAGE
Function	L-1
Diesel Fuel System Assembly Drawing	L-1
Parts List	L-2
Fuel Filter Replacement Procedure	L-3

FUNCTION

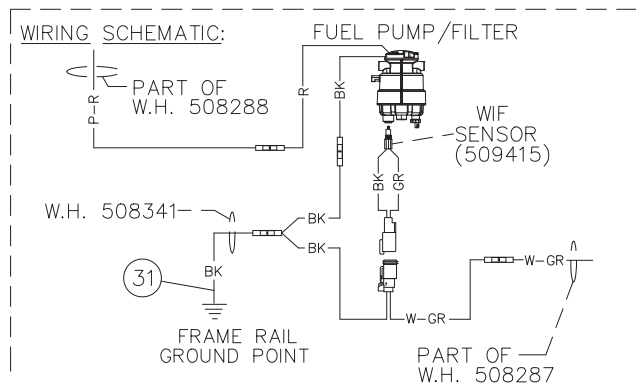
The fuel system for the truck and sweeper is supplied with a 30 gallon (113.56 liter) tank. The fuel gauge is located on the truck instrument panel.

WARNING: Before servicing, stop auxiliary engine and remove ignition key or disconnect negative battery cable.



MODEL 210/435/DST-4
FUEL SYSTEM - KUBOTA T4F - ISUZU
(M02745) REV A

08-21-2020
8:44 am
Sc



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**TYMCO MODEL 210/435/DST-4
KUBOTA T4F/ISUZU DIESEL FUEL SYSTEM PARTS LIST
DWG-M02745**

ITEM	QTY.	PART NO.	DESCRIPTION
	1	508281	Fuel System, Kubota T4F - Isuzu
1	1	(Comes w/Truck)	Fuel Cap
2	1	5017767	Fuel Filler Neck Mount
3	6	10110	Bolt - 1/4-20 x 3/4 HHCS
4	1	5017904	Support Bracket - Filler (435 Only)
5	12	10303	1/4" Flat Washer
6	2	10304	1/4" Lock Washer
7	2	10203	Nut - 1/4-20 Hex
8	1	5017769	Filler Hose - 2" I.D. x 18" Long
9	4	11320	Hose Clamp - 1-1/2 x 2-3/8
10	1	(Comes w/Truck)	Splice Pipe (Modified)
11	1	(Comes w/Truck)	Fuel Elbow (Modified)
12	1	(Comes w/Truck)	Fuel Tank
13	1	504174	Fuel Suction Fitting
14	1	30812	Fitting - 1/4 NPT - 5/16 SAE 90°
15	1	504569	Hose Assembly - 5/16" Fuel x 72"
16	6	11333	Hose Clamp - 7/32 x 5/8
17*	2	13236	Fitting - 5/16 HB - 3/8 MPT
18	1	508611	Fuel Filter/Water Separator
-	-	13302	Replacement Filter
19	2	10205	Nut - 5/16-18 Hex
20	2	10306	5/16 - Lock Washer
21	4	10305	5/16 - Flat Washer
22	2	10117	Bolt - 5/16-18 x 1 HHCS
23	1	508704	Hose Assembly - 5/16 Fuel x 82"
24	1	504194	Hose Assembly - 1/4 Fuel x 83"
25	1	30801	Fitting - 1/4 HB Tee
26	1	(Comes w/Truck)	Splicer Elbow - Vent Hose (Modified)
27	1	(Comes w/Truck)	Vent Hose
28	4	(Comes w/Truck)	Hose Clamp
29	1	(Comes w/Truck)	Filler Neck Assembly
30	3	(Comes w/Truck)	Bolt - 6mm
31	1	508341	Wire/Fuse - Fuel Pump/WIF GND

* Apply Rite-Lok Sealant (HP 45)

FUEL FILTER REPLACEMENT PROCEDURE

Priming Instructions

Spin the bowl and element (together) from the mounting head and fill with clean fuel. Spin the bowl and element (together) onto the head and tighten firmly by hand. Start the engine and check for leaks. Correct as necessary with the engine off.

Draining the Collection Bowl

Water is heavier than fuel and will settle to the bottom of the bowl and appear different in color. In marine or high humidity environments, check the collection bowl frequently (daily if a poor fuel source is suspected).

Element Replacement

Element replacement frequency is determined by the contamination level in fuels. Fuel flow to the engine becomes restricted as the element gradually plugs with contaminants, resulting in noticeable power loss and/or hard starting. When any one of these occur, change the element as soon as possible. As a guideline change the element every 500 hours, 10,000 miles, every other oil change, annually or at the first indication of power loss, whichever occurs first. Always carry extra replacement elements as one tankful of excessively contaminated fuel can plug filter.

CONTROL SYSTEM

MODEL DST-4 - SND SERIES - BLUELOGIC TABLE OF CONTENTS

SECTION M	PAGE
Function	M-1
BlueLogic System	M-2
BlueLogic Control Module	M-2
Module Input/Output LED Diagnostics	M-3
Output Overload Protection & Power Fault Detection	M-3
Module Network Diagnostics	M-3
BlueLogic Model LED/Wire Information	M-3
Programmed Sweeper Interlocks	M-4
Replacing a BlueLogic Control Module	M-4
Auxiliary Engine Exhaust Regeneration	M-4
8 Bank Switch Pack Module Diagnostics	M-6
Control Panel Color Display	M-6
Homepage	M-7
Page Selector	M-7
Auxiliary Engine	M-7
Exhaust System	M-7
Engine Fault Status	M-8
Sweeper Gauges	M-8
Service Tools	M-8
User Settings	M-9
Hour Meters	M-9
BlueLogic Status	M-11
Sweeper Statistics	M-12
Setup Menu	M-13
Display Icon Legend	M-14
User Installed "Extra" Lights Or Electrical Accessories	M-14
Control Console Assembly Drawing	M-15
Control Console Assembly Parts List	M-16
Control Panel Assembly Drawing and Parts List	M-17
Switch Pack Components	M-18
Switch Illumination Wiring Diagram	M-19
Control Panel Parts List	M-20
Control Panel Switch Wiring Diagram - Dual Tilt Gutter Brooms	M-21
Circuit Functions and Fuse Panel	M-22
Datalink Network Wiring	M-23
Hydraulic System Wiring (excluding Auxiliary Hydraulic System)	M-24
Water System Wiring	M-25
Engine Wiring Diagram	M-26
Truck/Sweeper Light Wiring Diagram	M-27
VMM Electrical Panel Assembly and Parts List	M-28
Replacement Fuses List	M-29
Auxiliary Power Distribution Assembly	M-29
DST Electrical System VMM Controls Wiring	M-30
Camera/Monitor System Assembly Drawing	M-31
Camera/Monitor System Assembly Parts List	M-32



WARNING: Before servicing, stop auxiliary engine and remove ignition key or disconnect negative battery cable.

M

FUNCTION

The operator control panel provides for all sweeper functions to be controlled from inside the cab. The control panel consists of a human-machine-interface or HMI display, one 8 bank switch pack for the main sweeping functions, several individual discrete switches for lighting and other auxiliary devices, and an auxiliary engine ignition key switch used to power up the sweeper and start the auxiliary engine.

BlueLogic® System

The Model DST-4 Regenerative Air Sweeper uses a BlueLogic® control system to interface the auxiliary engine and control sweeper functions. BlueLogic® is a multiplexing control system which has the ability to process logic and communicate with other electronic devices on the sweeper. The BlueLogic control module is located on the front of dust separator and communicates with the HMI display, 8 bank switch pack, and the auxiliary engine control unit or ECU over the primary Control Area Network (CAN) datalink cable. The CAN datalink is made up of one cable consisting of three wires (green, yellow, and a shield wire). The control module is constantly monitoring the state of the 8 bank switch pack, the HMI display, and each discrete module input. The control module processes these state changes and activates its outputs or sends command messages over the primary CAN datalink to these devices as programmed.

Some functions on the Model DST-4 are controlled discretely rather than through the BlueLogic® module. The functions controlled by the BlueLogic module are: gutter brooms, pickup head, main water system power, auxiliary hydraulics motor, and variable speed gutter broom valve. Some examples of the discrete switches are the work lights, individual water nozzle circuits, optional hydraulic circuits, etc.

The Model DST-4 with Final Tier 4 emissions is powered by an electronically controlled auxiliary engine. The engine ECU controls, monitors, and protects the engine from damaging itself. The ECU broadcasts engine information to the HMI display on the control panel. In the event of an engine derate or shutdown condition, the display will communicate the engine fault to the operator. The display also monitors and commands certain functions of the auxiliary engine over the primary CAN datalink such as the regeneration of the exhaust system and engine speed.

To protect the integrity of the BlueLogic control system, user installed lighting or electrical accessories should be avoided. All aftermarket installed circuits should be powered through the spare circuits on the fuse panel under the control panel or the auxiliary power distribution panel.

BlueLogic® CONTROL MODULE

The BlueLogic control module is powered by the 12V chassis electrical system and grounded through the module harness. The module is mounted to the front of the dust separator. See picture below.



Module Input / Output LED Diagnostics

The control module has 12 inputs and 10 outputs. Each input and output has a corresponding indicator LED located on the right side of the module in the status window. Most inputs are switched by a high side or positive voltage signal. Some are switched by a low side or grounded signal. When an input is switched, the corresponding input LED will illuminate to indicate that the input circuit is closed. When the circuit is opened, the input LED will turn off. All outputs switch to battery voltage (output 10 controls an optional circuit and can reduce the output voltage with pulse width modulation). When the corresponding output LED illuminates, the output closes the circuit to positive battery voltage supplying current to drive solenoid, light, and other circuits.

Output Overload Protection & Power Fault Detection


The control module also has output overload protection and power fault detection. If any of the module outputs overload due to a short circuit, the overloaded output will shut down internally. The corresponding output LED will blink when the module commands the output to turn on. This would indicate a shorted wire, solenoid, etc in that particular circuit. If there is no bus bar voltage for a group of outputs, any output in that group that is commanded to turn on will flash its corresponding LED indicating a power fault on that bus bar. Usually a power fault on the bus bar is due to a blown bus bar fuse.

Module Network Diagnostics

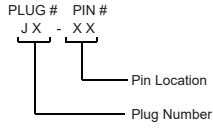
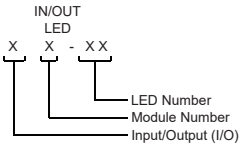
The control module has a PWR and NET LED that indicate module power and network communication status. The PWR LED will turn on when the module is powered up. It will flash to indicate a system fault. The NET LED will turn on indicating it is communicating with the network. If the NET LED turns off, this indicates the CAN datalink is disconnected from the module.

DST4 BlueLogic Module LED/Wire Information			
SWEEPER MODULE - VMM1			
PLUG # PIN #	IN/OUT LED	FUNCTION	WIRE COLOR
J1-1E	I1-1	IGNITION (+)	R
J1-2A	I1-2	PUH DOWN PRESSURE SWITCH (+)	R-BK
J1-2C	I1-3	AUX HYD REQUEST (+)	O-W
J1-2F	I1-4	LOW COOLANT (-)	Y
J1-3B	I1-5	REVERSE (+)	BL
J1-3E	I1-6	LOW WATER (-)	W-O
J2-1E	I1-7	HOPPER LOAD INDICATOR (-)	W
J2-1B	I1-8	WATER IN FUEL INDICATOR (-)	W-GR
J2-2B	I1-9	HYDRAULIC OIL TEMP SENSOR	BR-W
J2-2D	I1-10	OIL PRESSURE	BR-Y
J2-2E	I1-12	AIR FILTER RESTRICTION	GY-R
J1-3C	O1-1	RH GUTTER BROOM UP	BR-W
J1-3D	O1-2	LH GUTTER BROOM UP	Y-BK
J2-1C	O1-3	PICK-UP HEAD UP	R-Y
J2-3C	O1-4	SPARE	
J1-3F	O1-5	WATER SYSTEM	W
J1-1C	O1-6	PICK-UP HEAD DOWN	BK-W
J1-1D	O1-7	RH GUTTER BROOM DOWN	GR-R
J1-1F	O1-8	LH GUTTER BROOM DOWN	W-BL
J2-3D	O1-9	AUXILIARY HYDRAULICS RUN	GY-BK
J2-1D	O1-10	GUTTER BROOM SPEED	R-GR

DST MODULE - VMM2			
PLUG # PIN #	IN/OUT LED	FUNCTION	WIRE COLOR
J1-1E	I2-1	IGNITION (+)	R
J1-2A	I2-2	DOOR CLOSED PROX	R-BK
J1-3B	I2-5	CURTIAN LIFT SWITCH	BL-O
J2-2B	I2-9	PRECLEANER PRESSURE SENSOR	BK-W
J2-2D	I2-10	DST FILTER PRESSURE SENSOR	BL-Y
J2-2C	I2-11	AIR TANK PRESSURE SENSOR	BR-R
J1-3C	O2-1	TOP FILTER PULSE	P-R
J1-3D	O2-2	BOTTOM FILTER PULSE	P-O
J2-1C	O2-3	PULSE SYSTEM INDICATOR	GR-O
J2-3C	O2-4	SCAVENGE PULSE	P-Y
J1-3F	O2-5	DRAIN VALVE	R-W
J1-1C	O2-6	SENSOR POWER	BR
J1-1D	O2-7	CURTAIN LIFT UP	O-BL
J1-1F	O2-8	CURTAIN LIFT DOWN	GY-R
J2-3D	O2-9	FLUE ACTUATOR OPEN	BK-R
J2-1D	O2-10	FLUE ACTUATOR CLOSE	P-W



Program Version #: v3.X
Decal Part #: 5021895
Module Part #: 508952

The module has a custom program loaded on it to control the outputs based on module inputs and CAN inputs. The program version, program revision level, and I/O information are located on the Module LED/Wire Information Decal example shown above. The module status, I/O, and program version/revision can also be viewed on the HMI display on the control panel.

M

Programmed Sweeper Interlocks

The control module is preprogrammed with several standard sweeper interlocks as well as some optional. Some interlocks protect certain components from damage while others are for operator convenience. See the options section of this manual for more information on optional interlocks.

Low water level: When the low water sensor detects no water in the water tanks, the control module will shutdown the water system and prevent the water pump and water nozzle solenoids from activating.

Replacing a BlueLogic® Control Module

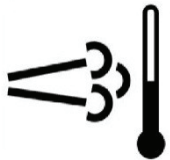
If a control module must be replaced due to a malfunction, the faulty control module can be replaced with a blank non-programmed module. The newly replaced module will automatically learn the program from the existing module when the auxiliary engine key ignition is turned On. When ordering the replacement module, a blank module will be provided to fill the order. This ensures that the new module will learn the correct program revision from the existing module and no conflicts in program revision will occur. If both modules need to be replaced, contact your dealer for assistance. To replace a module, follow this procedure.

1. With the auxiliary engine key in the OFF position, remove the module that needs to be replaced.
2. Reinstall the new, blank module.
3. Then turn the auxiliary engine key to the ON position. Do NOT attempt to start the engine. Do NOT press any switches or turn off the ignition key during the reprogramming process. Allow 2 to 5 minutes for the module to reprogram. After the LED lights have normalized, the module is fully programmed and ready for operation.

If the programming does not complete within 5 minutes, you may have to reset the BlueLogic® control module and restart the process. To reset the modules, remove power from both modules for 30 seconds by pulling the VMM Processor fuses.

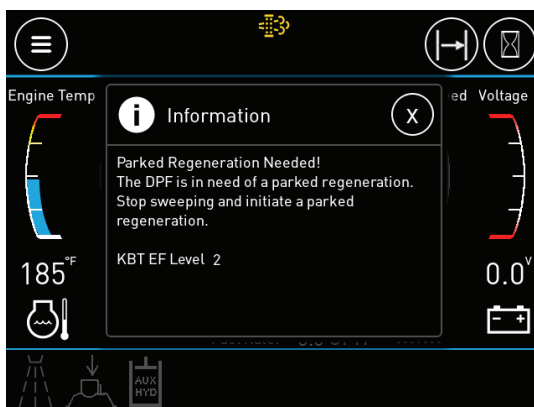
Auxiliary Engine Exhaust System Regeneration (Regen)

The engine will automatically clean the exhaust system under normal sweeping operation through process of regeneration. This will occur as needed when the engine load is elevated, the pick-up head is down, and engine RPM is above idle. The high exhaust temperature icon will illuminate to indicate cleaning is active.

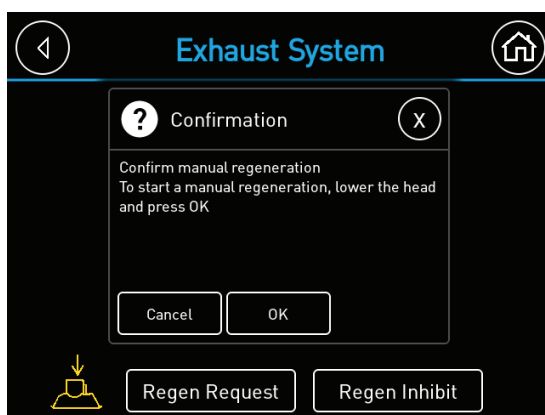


High Exhaust Temperature Icon

If operator initiated regeneration is needed, the Exhaust Filter Indicator will illuminate along with a diagnostic trouble code message.



To initiate a regeneration, go to the “Exhaust System” page and press “Regen Request”. Lower the pick-up head, and press the “OK” button to confirm and initiate regeneration.



The engine ECU will take control of engine throttle and complete the cleaning process. The manual Regen will be canceled if any of the following occur:

- a. Pick-up head is raised
- b. Engine RPM increase switch is pressed
- c. Engine RPM decrease switch is pressed
- d. Regen Inhibit is activated

M

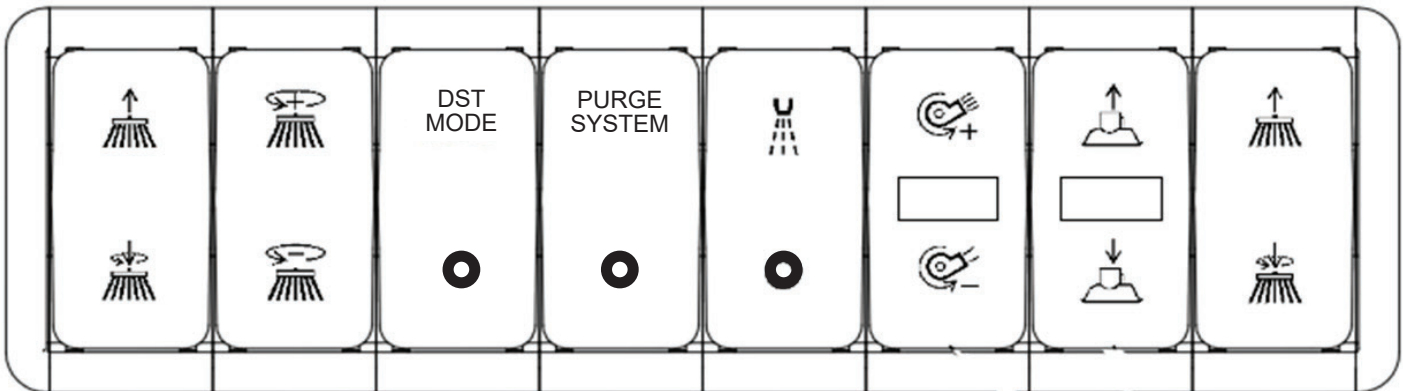
8 Bank Switch Pack Module Diagnostics

The switch pack module communicates each switch position over the CAN datalink to control module. Each switch controls a function such as gutter broom, pick-up head, etc. The switch pack has feed back LED indicators for each switch position on all eight switches. Below is a LED color chart to explain the switch and switch function status.

LED SWITCH / FUNCTION STATUS

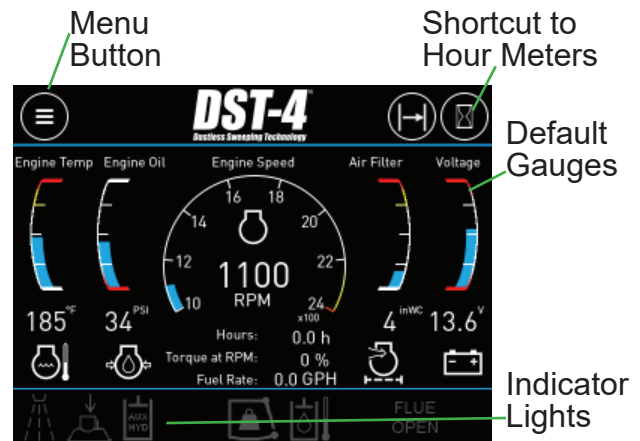
OFF: switch inactive, function inactive
 CYAN: switch active, function inactive
 GREEN: switch active, function active
 AMBER: switch active, function stand-by
 RED: switch active, function faulted

LEFT GUTTER BROOM UP/DOWN	GUTTER BROOM SPEED UP/DOWN	DST MODE	PURGE SYSTEM	WATER SYSTEM ON/OFF	BLOWER RPM UP/DOWN	PICK-UP HEAD UP/DOWN	RIGHT GUTTER BROOM UP/DOWN
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CONTROL PANEL COLOR DISPLAY

The Model DST-4 BlueLogic® control system includes a color human-machine interface (HMI) display. The display is used to convey system information to the user as well as allow the user to input information to the control system. The display utilizes multiple pages to communicate related groups of information. The operator can navigate these pages using the touch screen interface.



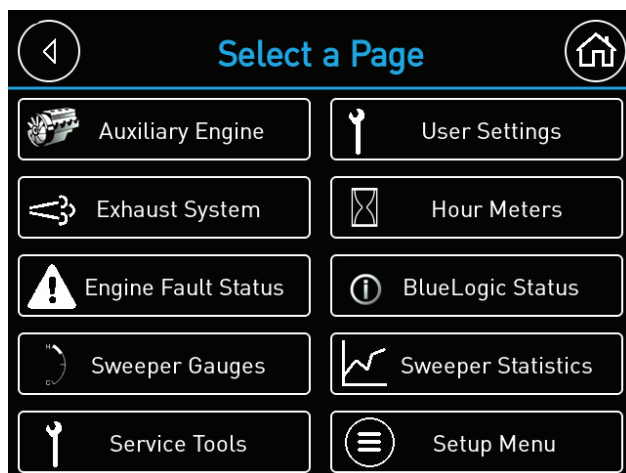
The available pages include:

Homepage

The Homepage is the main screen that will always show after the ignition is turned on. The bottom of the page will show sweeper status indicator lights. The icons will change color to indicate the state of the feature. A gray icon indicates the inactive state. The gauges and icons visible on the Homepage will vary depending on the options ordered. Engine Speed will always be displayed in the center of the screen. The left most gauge will display engine temperature. The gutter broom speed selection will also be shown here for a few seconds after the selection is changed. The middle left gauge position will either be engine oil pressure or the optional Leaf Pressure Bleeder Position Gauge. The middle right gauge will show optional variable speed broom setting or optional engine air filter restriction. The right most gauge will either be battery voltage or the optional dust suppression water level gauge. If the sweeper is equipped with optional gauges, the default engine gauges can be viewed on the engine data page. Pressing the HOME button on any page will bring you back to the Homepage. The display will automatically close all pages and return to the Homepage after 5 minutes.

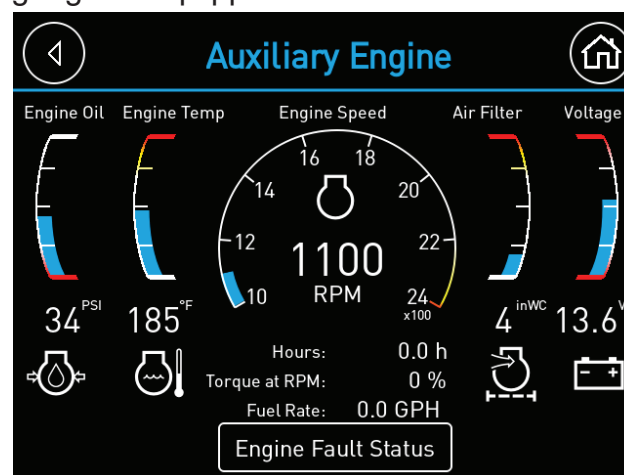
Page Selector

When on the Homepage, pressing the menu button will bring up the Page Selector screen. The available pages will vary based on the options ordered. Once on the Page Selector screen, simply touch the desired page to display it. From any page, press the Home Button to return to the Homepage. Press the Back button to go back one page.



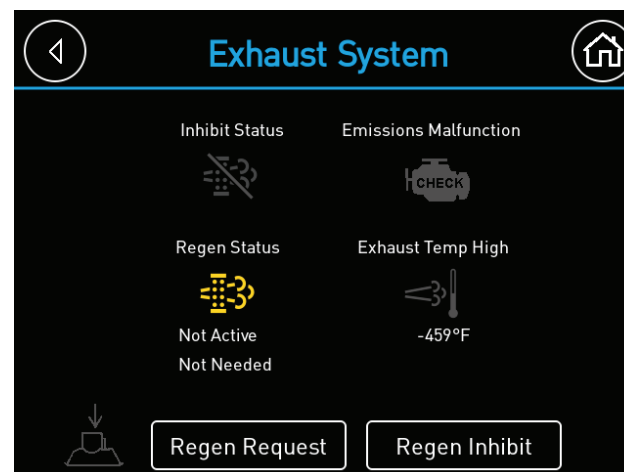
Auxiliary Engine

Engine speed, engine oil pressure, engine coolant temperature, and battery voltage will be displayed as well as engine hours, engine torque % and fuel rate. These gauges will always be present regardless of the options ordered. Pressing the Engine Fault Status button will bring up the Engine Fault Status page. This page may also include optional gauges if equipped.



Exhaust System

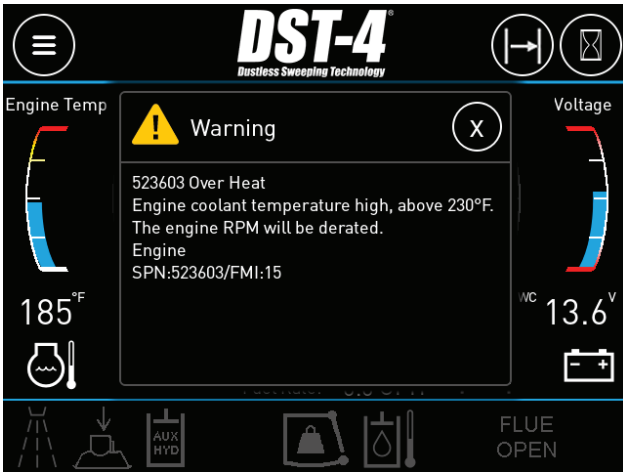
Detailed information about the status of the auxiliary engine exhaust system can be viewed on the Exhaust System Page. If a manual regeneration is required, this is initiated by pressing the Regen Request button and following the prompts. The exhaust icons will also be displayed on the Homepage when active. Pressing the Regen Inhibit button will prevent the engine from cleaning itself when needed. This feature should not be used unless prompted by trained personnel.



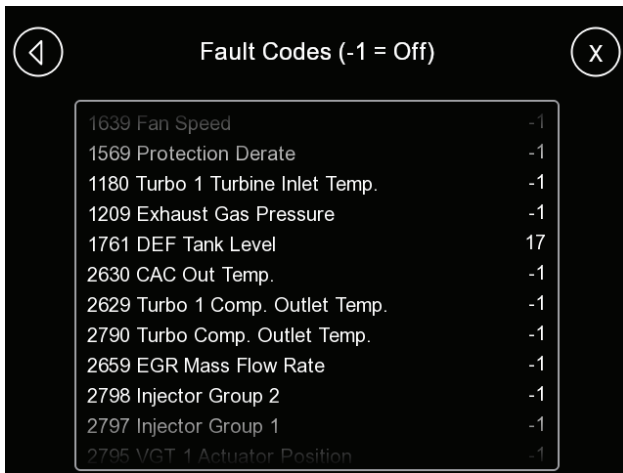
M

Engine Fault Status

When an active engine fault occurs a warning message will appear over the active page as shown below.

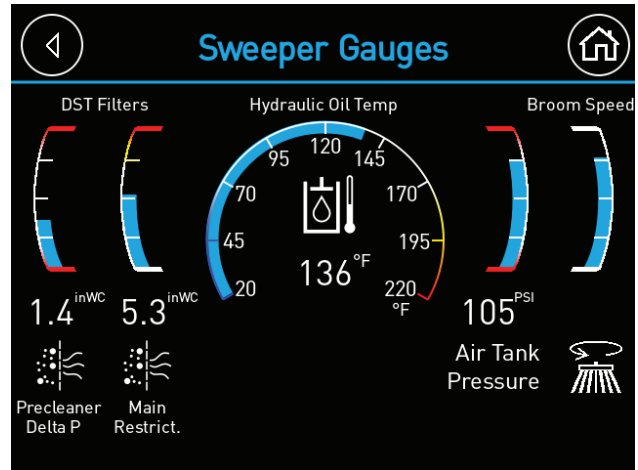


Once the fault is acknowledged, the message will disappear. The Engine Fault Status Page allows the user to view active faults after they are acknowledged. A value of -1 indicates the fault is inactive; any other number represents the FMI (Fault Mode Indicator) code of the fault. Swipe the screen vertically to scroll.



Sweeper Gauges

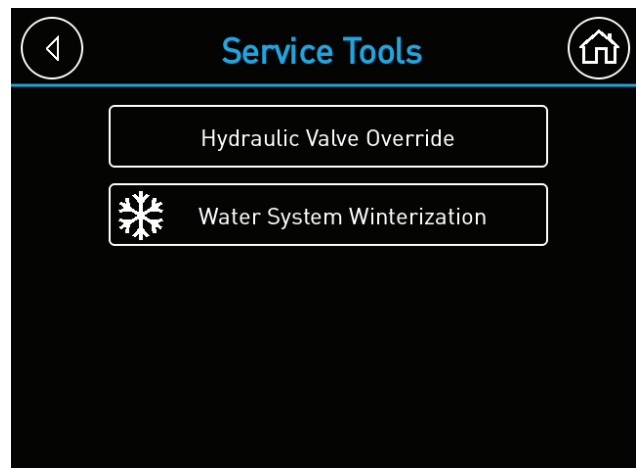
The hydraulic oil temperature as well as all non-engine related sweeper gauges will be displayed. The gauges displayed will vary depending on options ordered.



Service Tools

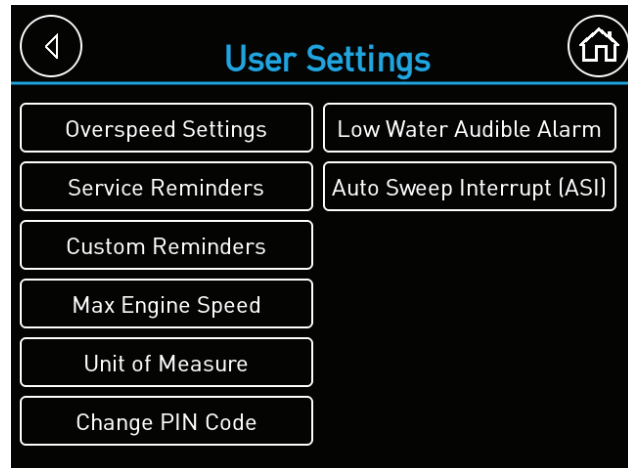
The Service Tools page has special diagnostic controls that can be used for troubleshooting and maintenance. The Hydraulic Valve Override button will direct the user to another page that will allow the user to send a request to turn on the bypass valve and variable speed broom control valve (if equipped). These valves must be on in order to use the manual override buttons on the hydraulic directional valves. This is useful in the event that a hydraulic solenoid coil fails on the directional valves.

The water system winterization controls are accessed from the service tools page. See the water system section or options section for instructions on winterizing the water system.



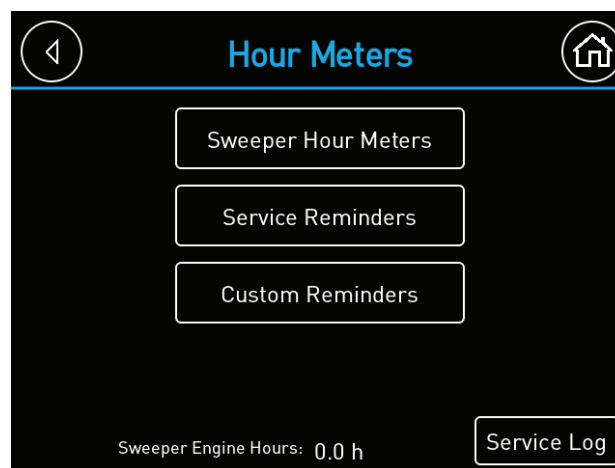
User Settings

There are some user configurable options. These can be adjusted by the operator or supervisor. To access this screen, the customer PIN code must be entered. The default PIN Code is “2345”. The PIN Code can be changed if desired. Press the Change PIN Code button and follow on screen prompts. If equipped, the overspeed warning set points can be adjusted within allowable parameters or disabled. Service reminders can be configured. If equipped, the ASI operation can be configured. See ASI section for details of available settings. The maximum auxiliary engine speed can be adjusted within allowable parameters. Unit of Measure will allow units to be switched from imperial (miles, psi/inwc, °F) to metric (km, kPa, °C).



Hour Meters

Non-resettable and resettable trip hour meters for engine, pick-up head, gutter broom (RH and LH), water pump, and blower functions are included with the BlueLogic® control system. In addition, programmable service reminders are provided for many scheduled maintenance items. The main hour meter page will show the engine hours.



Pressing the “Sweeper Hour Meters” button will show the sweeper hour meters. To reset the trip hour meters, press the “Reset” button next to the hour meter to be reset. Press “OK” on the confirmation window to reset the trip hour meter.

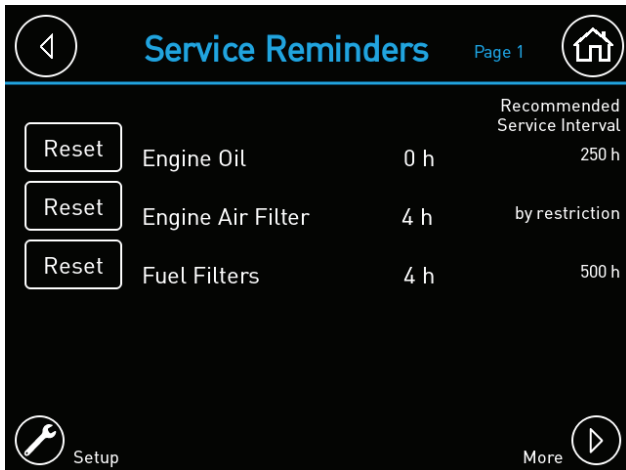
	Total	Trip	
Engine	0.0 h	0.0 h	Reset
Pick Up Head	0.1 h	0.0 h	Reset
RH Gutter Broom	0.0 h	0.0 h	Reset
LH Gutter Broom	0.0 h	0.0 h	Reset
Water Pump	0.0 h	0.0 h	Reset
Blower	0.2 h	0.0 h	Reset
DST Main Filters	2.4 h	0.0 h	Reset

Pressing the “Service Reminders” button will show the Service Reminders page. The BlueLogic® control system monitors machine usage and will trigger a service message when many recommended service intervals are reached.

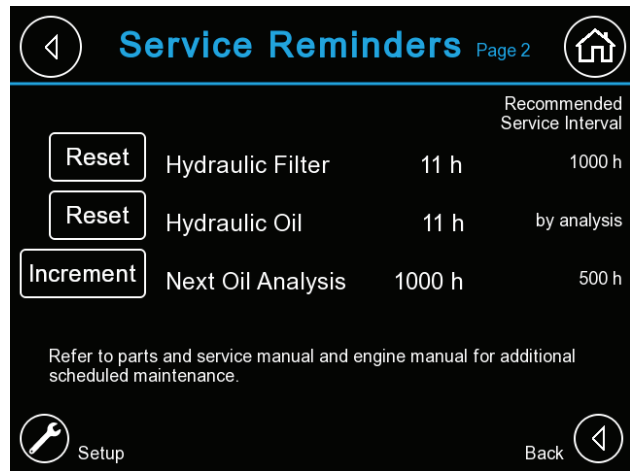
M



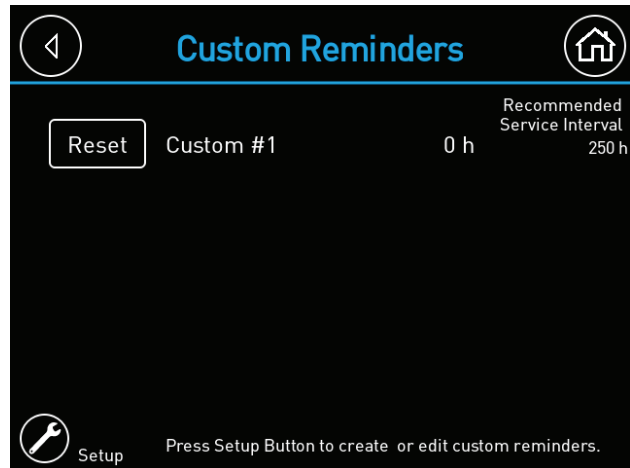
The Service Reminders Page is used to monitor and reset the service timers. The recommended service interval for each item will be shown on the right side of the screen. Once the service is completed, reset the timer by pressing the “Reset” button for the corresponding reminder. Press the “More” button to access additional reminders.



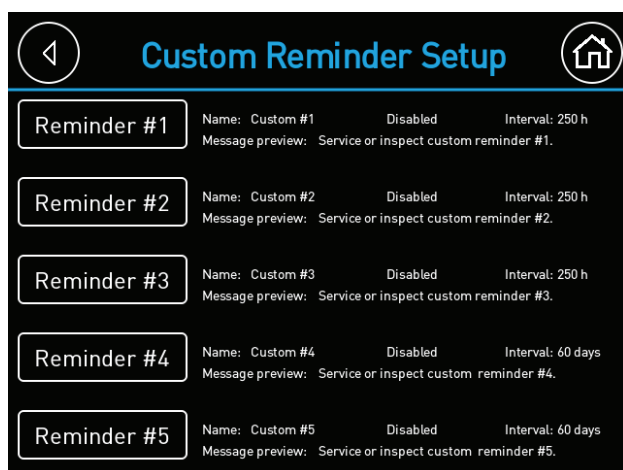
Page 2 of the service reminders includes hydraulic oil and filters. If a hydraulic oil sampling program is desired, the reminder can be configured to trigger sampling at 1000 hours and every 500 hours thereafter. After a good sample is completed, press the increment button to bump the sampling trigger point 500 hours. Resetting the hydraulic oil hour meter will reset the oil sampling trigger back to 1000 hours. To configure the service reminders press the setup button. Enter the User PIN code “2345” to access the settings.



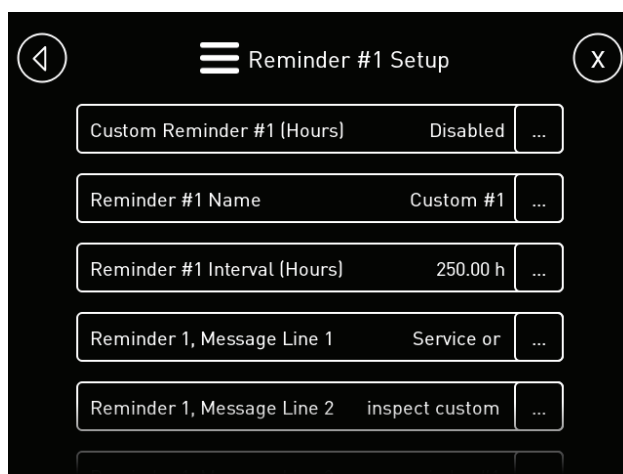
Five customizable service reminders are provided. To access these reminders, press the Custom Reminders button. To setup the custom reminders press the Setup button on the Custom Reminders page. Each reminder must be enabled and configured by the user.



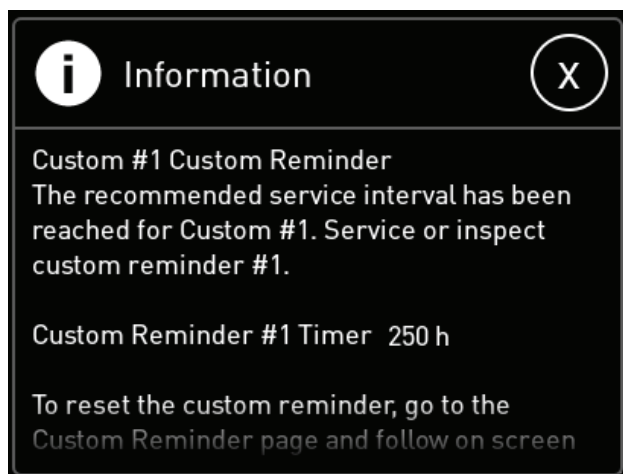
Each reminder allows the user to enter a 15 character description, a 45 character message, and the trigger interval. The trigger interval for Reminders 1 through 3 is based on engine hour run time and can be adjusted in 50 hour increments. The trigger interval for Reminders 4 and 5 is in calendar days. The date and time must be properly set for reminders 4 and 5 to function properly. The date and time may be lost if the battery is disconnected for extended periods of time.



To configure a reminder, press the corresponding Reminder # button to access the adjustable fields. Once the reminder is enabled, it will show up on the Custom Reminder page.



When the custom reminder service interval is reached, the custom reminder message will pop up with the custom message inserted. To reset the custom reminder, go to the Custom Reminder page and reset using the same procedure and the standard reminders.

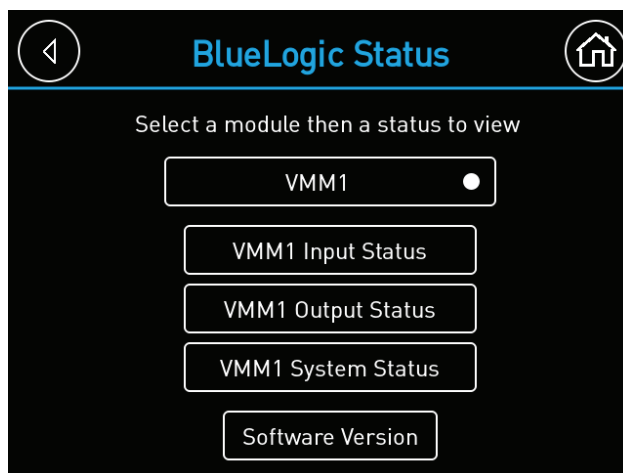


Each time a service timer is reset, it will be recorded in the Sweeper Service Log. The engine hours at the time of the service will be recorded. The log can be accessed by pressing the Service Log button on the main Hour Meters page.



BlueLogic Status

The status of the BlueLogic module (VMM) can be viewed on the VMM status page. The status mimics the diagnostic lights on the face of the VMM. VMM inputs, outputs, system status, and software version can be viewed by pressing the corresponding function key.



VMM Input Status

I1-1 Sweeper Ignition	Off	
I1-2 Pick Up Head Down	Off	
I1-3 Aux Hyd Request	Off	
I1-4 Low Coolant	Off	
I1-5 Reverse Trigger	Off	
I1-6 Low Water	Off	
I1-7 Hopper Load Ind.	On	
I1-8 WIF Sensor	Off	
I1-10 Engine Oil Pressure	Off	10.2 V

Sweeper Statistics

The BlueLogic control system generates useful statistical information. The sweeper statistics page provides access to the sweeper odometer and fuel usage.

Sweeper Statistics

→ Sweeper Odometer

Fuel Usage

The sweeper odometer keeps track of distance swept. The feature provides a non-resettable odometer, trip odometer, and an odometer trip hour meter. The average sweeping speed is provided for the trip odometer. The odometer is managed by the BlueLogic® Control System and logs distance any time the head is down (indicated by the amber head down indicator on the display) and the engine is above idle. To reset the trip odometer, hour meter, and average speed, press the “Reset Trip” button.

Sweeper Odometer

Sweeper Odometer	6.2 mi
Sweeper Trip Odometer	0.0 mi
Odometer Trip Hours	0.0 h
Average Sweeping Speed	0.0 mph

Reset Trip

The BlueLogic system automatically calculates the auxiliary engine fuel consumption and reports it on the Fuel Usage page. This is a calculated fuel consumption based on instantaneous fuel rate. Actual fuel consumption may vary. Trip fuel usage, trip timer, average fuel economy, and instantaneous fuel rate are provided. To reset the trip fuel usage, fuel trip hours, and the average fuel economy, press the “Reset Trip” button and follow on-screen prompts.

Fuel Usage

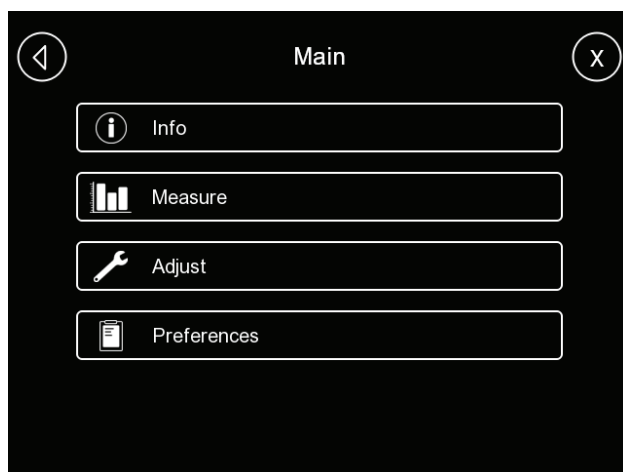
Fuel Usage, Trip	0.2 Gal
Fuel Trip Hours	0.0 h
Average Fuel Economy	13.0 GPH
Instantaneous Fuel Rate	0.0 GPH

Reset Trip
























Note: Fuel usage shown is a calculated fuel consumption for the auxiliary engine. Actual fuel consumption may vary.

Setup Menu

The Setup Menu is primarily used for factory setup and diagnostics. The Info tab provides access to event logs and module status. The Measure tab provides additional diagnostic information. The Adjust tab provides access to configurable options. Most adjustments are for factory configuration and are not accessible by the user. Under the Preferences tab, the backlight, date and time can be set.



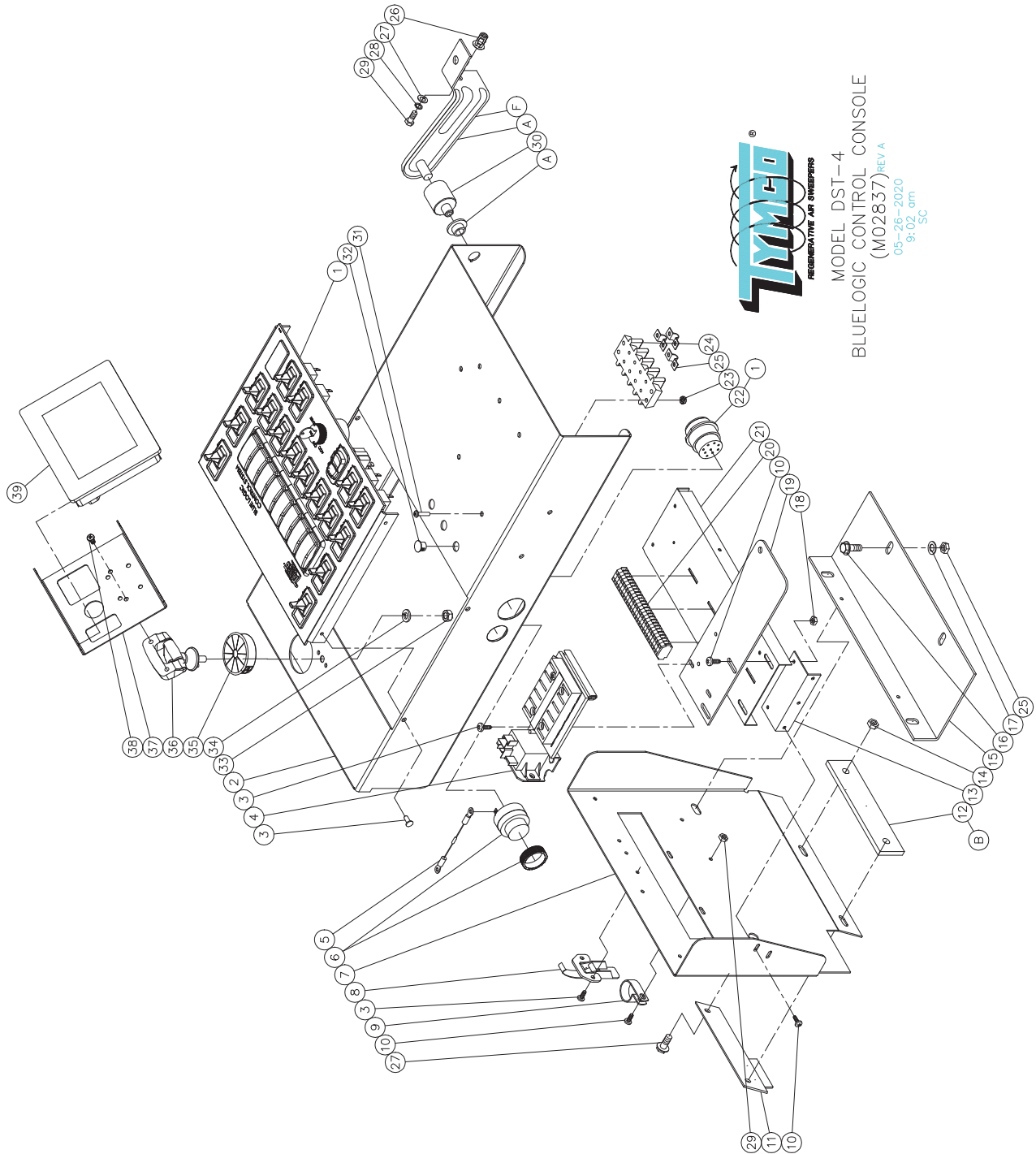
DISPLAY ICON LEGEND

 <p>Water System Amber = Standby Green = Pump on</p>	 <p>Dust Suppression Water Level Amber = Low Water</p>	 <p>Auxiliary Hydraulics Amber = Standby Green = Pump on</p>	 <p>Hydraulic Oil Temp Red = Oil very hot Amber = Oil hot Blue = Oil cold</p>
 <p>BAH Green = On Gray = Inactive (Models 600/500x/ DST-6 Only)</p>	 <p>Pick-Up Head Amber = Down Gray = Up</p>	 <p>Engine Air Filter Restriction Amber = > 20 inwc Red = > 25 inwc</p>	 <p>Hopper Load Indicator Amber/Red = Full</p>
 <p>Exhaust Aftertreatment Amber = Regeneration Active or Needed</p>	 <p>Regeneration Inhibited</p>	 <p>Exhaust System Temperature High – Normal during exhaust regeneration</p>	 <p>Hydraulic Filter Restriction Amber = Change filter</p>
 <p>Emissions System Malfunction Indicator</p>	 <p>Engine Warning Indicates active engine fault</p>	 <p>Engine Stop! Indicates serious engine fault and engine will shut down</p>	 <p>Low Hydraulic Oil Hydraulic oil level critically low- engine shut down</p>
 <p>Engine Coolant Temperature Red = Fault (overheated)</p>	 <p>Engine Oil Pressure Red = Fault</p>	 <p>Leaf Pressure Bleeder</p>	 <p>Sweeper Odometer</p>
 <p>Magnet Height Amber = Magnet Down</p>	 <p>Diesel Exhaust Fluid (DEF) Amber = Low</p>	 <p>Gutter Broom Speed</p>	 <p>Hour Meter</p>

USER INSTALLED “EXTRA” LIGHTS OR ELECTRICAL ACCESSORIES

Adding circuits to the sweeper control system should be done with the utmost consideration to the effects on the TYMCO installed electrical wiring. Total current draw should be less than the installed fuse or circuit breaker. Under no circumstances should the value rating of the installed fuse or circuit breaker be exceeded.

Added circuits that exceed the current draw of TYMCO Wiring are best controlled through the use of a relay which can utilize an existing TYMCO wire for the “Switch-on” signal. The main power for extra circuits should be separately fused. Failure to follow these guidelines may VOID any warranties applicable as determined by TYMCO.

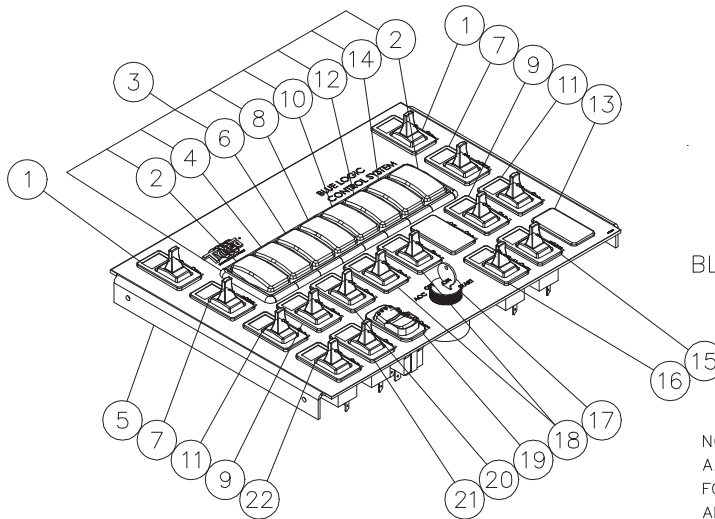


MODEL DST-4
BLUELOGIC CONTROL CONSOLE
(M02837) REV A
05-26-2020
9:02 am
SC

M

TYMCO MODEL DST-4 CABOVER BLUELOGIC CONTROL CONSOLE ASSEMBLY DWG-M02837

ITEM	QTY	PART NO	DESCRIPTION
	1	508957	Control Console Assembly - BlueLogic DST-4
1	1	508956	Control Panel Assembly
2	1	5021093	Control Console
3	8	10107	Screw - #10-24 Self Tap
4	1	507609	Fuse Panel & Relay Assembly
5	1	508154	Resistor Assembly - 3.3K Ohm
6	1	11561	Mini Siren
7	1	506760	Front Panel Assembly
8	1	12008	Catch
9	1	11338	Clamp - Dipped - 1"
10	6	30133	10-32 x 1/2 PH Pan HD
11	1	5013210	Cable Clamp
12	1	5016206	Back Up Plate
13	1	5015422	Wago Strip Plate Ext.
14	4	10272	Nut - 5/16-18 Kep
15	1	5016205	Front Tie Plate
16	4	30120	Bolt - 5/16-158 x 1 1/4 Self Tap
17	2	10305	Flat Washer - 5/16
18	10	10241	Nut - 10-32 Kep
19	1	5020072	Bracket - Main Wire Harness
20	1	504030	Wago Strip Assembly - 22 Pos.
21	1	5015423	Wago Strip Plate
22	1	508332	Harness - Display - C1 Connector
23	2	10260	Nut - 8-32 Kep
24	1	21645	Terminal Strip 4 Pole
25	3	21593	Terminal Bridge
26	1	20216	Jack Nut - 8-32 Kep (w/Adjustable Seat Only)
27	1	10303	Flat Washer - 1/4 (w/Adjustable Seat Only)
28	1	10304	Lock Washer - 1/4 (w/Adjustable Seat Only)
29	1	10110	Bolt - 1/4-20 x 3/4 HHCS (w/Adjustable Seat Only)
30	1	5019802	Console Pivot (w/Std. Factory Seat Only)
31	2	20171	Screw - 8-32 x 3/4 HHCS
32	3	12057	Plug Plastic - 1/2"
33	1	10299	Nut - 8mm - 1.25 Hex ZP
34	1	10306	Lock Washer - 5/16
35	1	13365	Pass Through Bushing - 2"
36	1	13364	Display Friction Mount
37	1	5021502	Adapter Plate
38	2	13366	Screw - K50 x 10mm
39	1	509404	MD4 Display with Program - DST-4

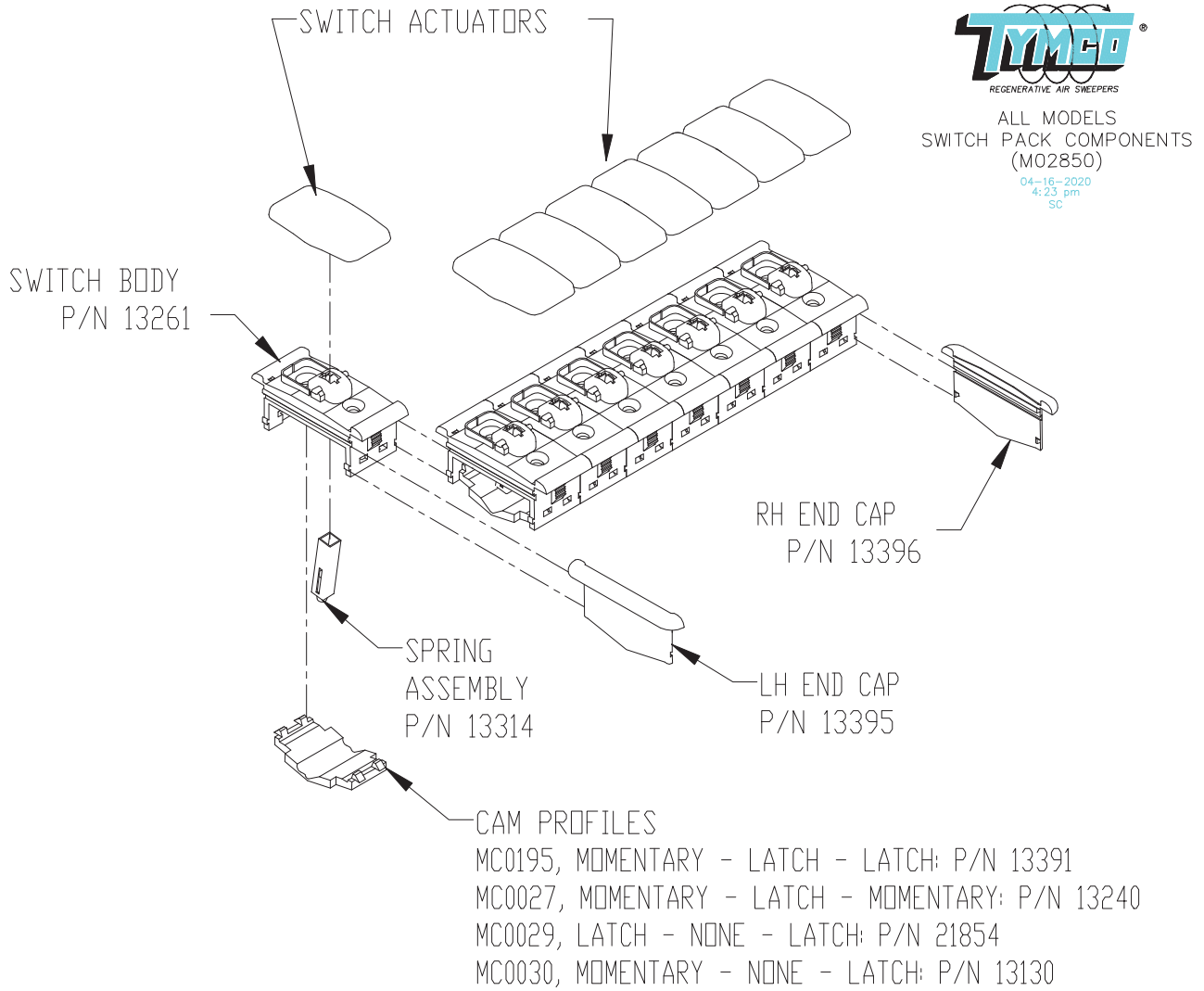


MODEL DST-4
 BLUELOGIC CONTROL PANEL
 (M02838) REV A
 05-26-2020
 9:06 am
 SC

NOTES:
 A. OPTIONAL SWITCHES ARE SHOWN FOR REFERENCE. THE INCLUDED SWITCHES AND LOCATION MAY VARY BASED ON THE OPTIONS ORDERED.

TYMCO MODEL DST-4 BLUELOGIC CONTROL PANEL ASSEMBLY DWG-M02838

ITEM	QTY	PART NO	DESCRIPTION
	1	508956	Control Panel Assembly - BlueLogic DST-4
1	1	506252	Switch - Broom Position (Optional)
2	2	13169	Switch Actuator - Gutter Broom
3	1	508029	HMI Switchpack Assembly
4	1	13238	Switch Actuator - GB RPM
5	1	508133	Control Panel
6	1	5021013	Switch Actuator - DST Mode
7	2	503838	Switch - Broom Tilt (Optional)
8	1	5021014	Switch Actuator - Purge System
9	2	503845	Switch - Broom Water
10	1	13239	Switch Actuator - Main Water
11	2	503846	Switch - Broom Light
12	1	13171	Switch Actuator - Blower/Engine RPM
13	1	11776	Switch Black Cover
14	1	13170	Switch Actuator - Pick-Up Head
15	1	507415	Switch - Curtain Lifter - DST-4
16	1	503841	Switch - Pressure Bleeder (Optional)
17	1	12106	Ignition Switch
18	2	503850	Switch - H/O Water (Optional)
19	1	11890	Switch - Dump Door (Optional)
20	1	503849	Switch - Hopper Water
21	1	503847	Switch - Warning Lights
22	1	503856	Switch - Work Lights
Not Shown	1	508330	Control Panel Wires
Not Shown	2	507629	Harness -Switch Illumination Power
Not Shown	2	508333	Harness -Switch Illumination Ground
Not Shown	1	508813	Harness - Display Connector C2
Not Shown	1	508332	Harness - Display Connector C1
Not Shown	1	509016	Harness - Ignition/Curtain Lifter - DST-4



M

**GROUND & SWITCH ILLUMINATION CIRCUITS
CONTROL PANEL PARTS LIST
DWG-M02737, M02796, M02797, M02738, M02739**

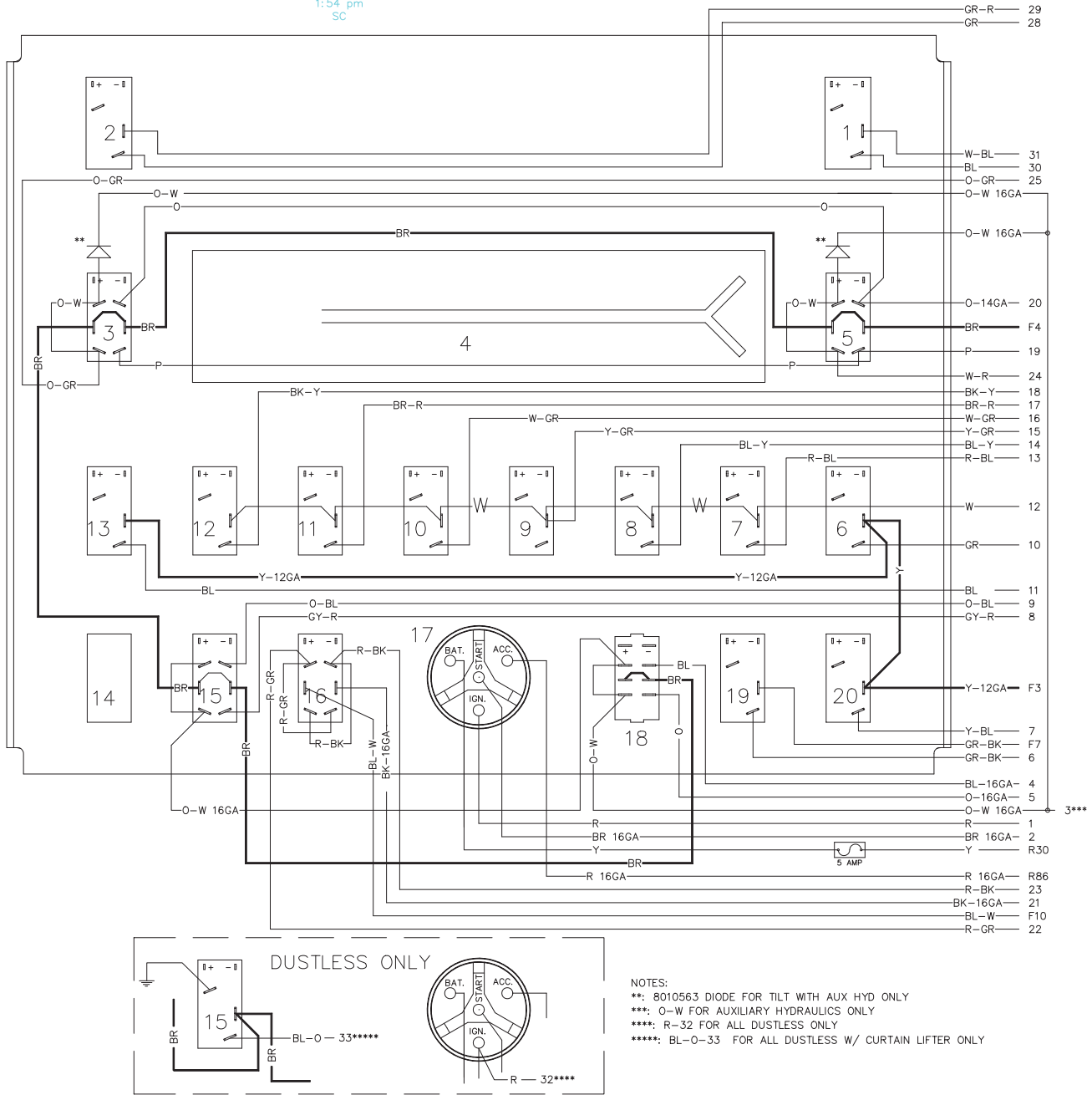
ITEM	QTY	PART NO	DESCRIPTION
1	1	506252	Switch - Broom Position (LH)
2	1	506252	Switch - Broom Position (RH)
3	1	503838	Switch - Gutter Broom Tilt (RH)
4	1	508029	8 Position Switch Pack
5	1	503838	Switch - Gutter Broom Tilt (LH)
6	1	503846	Switch - Broom Light (LH)
7	1	503845	Switch - Broom Water (LH)
8	1	503849	Switch - Hopper Water
9	1	503850	Switch - H/O Water (LH)
10	1	503850	Switch - H/O Water (RH)
11	1	503851	Switch - Pickup Head Water
-	1	505419	Switch - Transition Water
12	1	503845	Switch - Broom Water (RH)
13	1	503846	Switch - Broom Light (RH)
14	1	11776	Switch Blank Cover
15	1	507415	Switch - Curtain Lifter - DST-4
16	1	503841	Switch - Pressure Bleeder
17	1	12106	Ignition Switch
18	1	11890	Switch - Dump Door
19	1	503847	Switch - Warning Lights
20	1	503856	Switch - Work Lights
21	1	508154	Resistor Assembly
22	1	11561	Mini Siren
23	1	508813	Harness - MD4 Display C2
24	1	508332	Harness - MD4 Display C1
25	1	21532	120 Ohm Terminating Resistor
26	2	508333	Harness - Illumination Ground
27	2	507629	Harness - Illumination Power
28	1	503459	Harness - Gutter Broom Light LH
29	2	21799	Work Light - LED
30	1	502433	Harness - Gutter Broom Light RH
31	1	508338	Harness - Datalink Extension
32	1	508324	Main Harness - 150" WB Cabover
-	1	508890	Main Harness - 132" WB Cabover
33	1	508337	Harness - Datalink
34	1	507576	Harness - Fuse Panel Supply
35	1	508891	Harness - Ground Supply
36	1	21645	Terminal Strip
37	1	507609	Fuse Panel Assembly
38	1	503880	Harness - Pressure Bleeder
39	1	504983	Harness - Bidirectional Lock Valve LH
40	1	504984	Harness - Bidirectional Lock Valve RH
41	3	12701	Bridge
42	1	509016	Harness - Ignition/Curtain Lifter - DST-4
43	1	508904	Harness - Drop Down Broom LH
44	1	508905	Harness - Drop Down Broom RH

NOTE: When ordering complete panel assembly, you MUST indicate optional switches required and type of truck. Panel will be shipped assembled with wiring provided up to terminal strip.



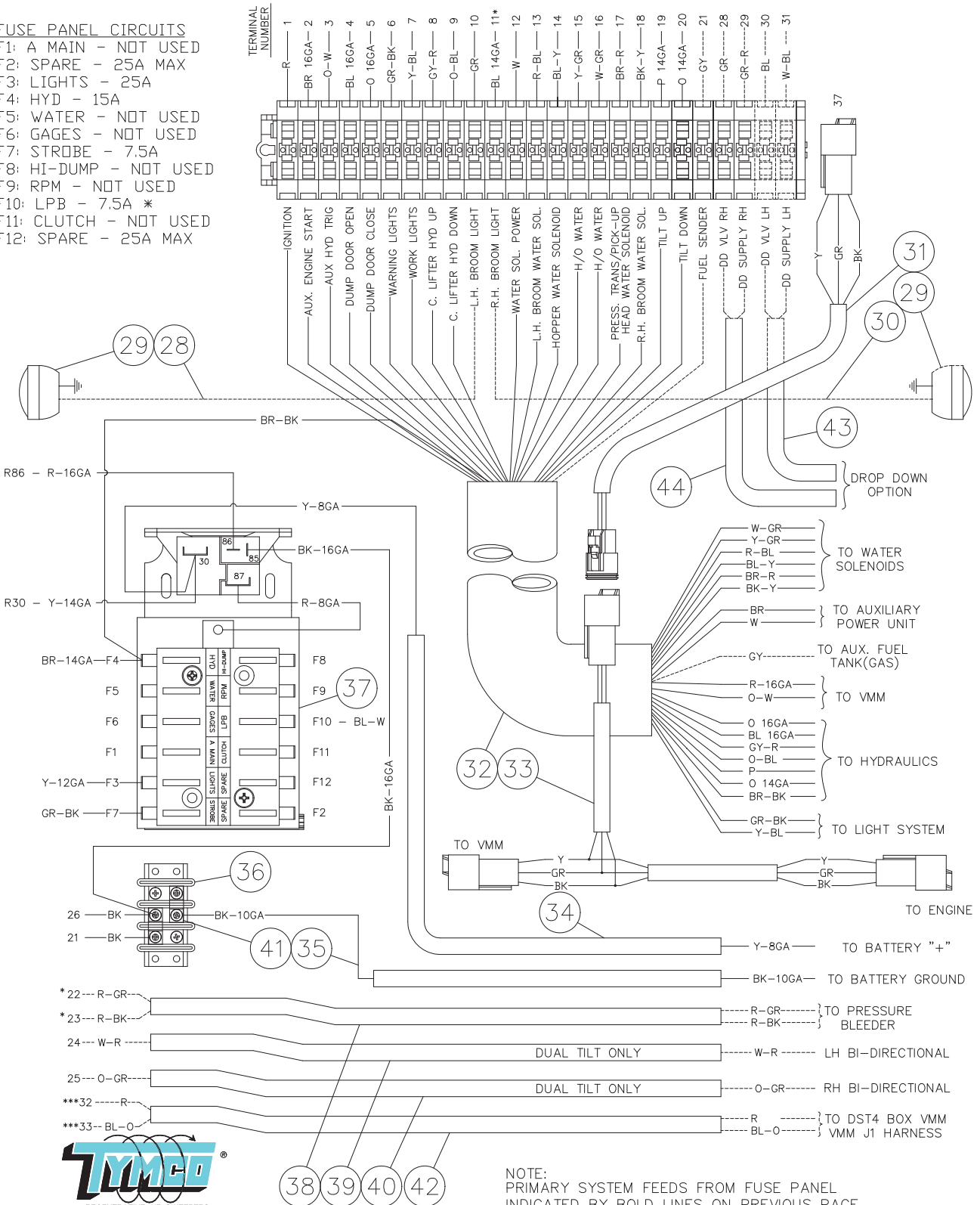
MODEL 210/435/DST-4
 BLUELOGIC CONTROL PANEL
 DUAL GB/DUAL TILT SWITCH WIRING
 (M02738) REV C

02-11-2021
 1:54 pm
 SC



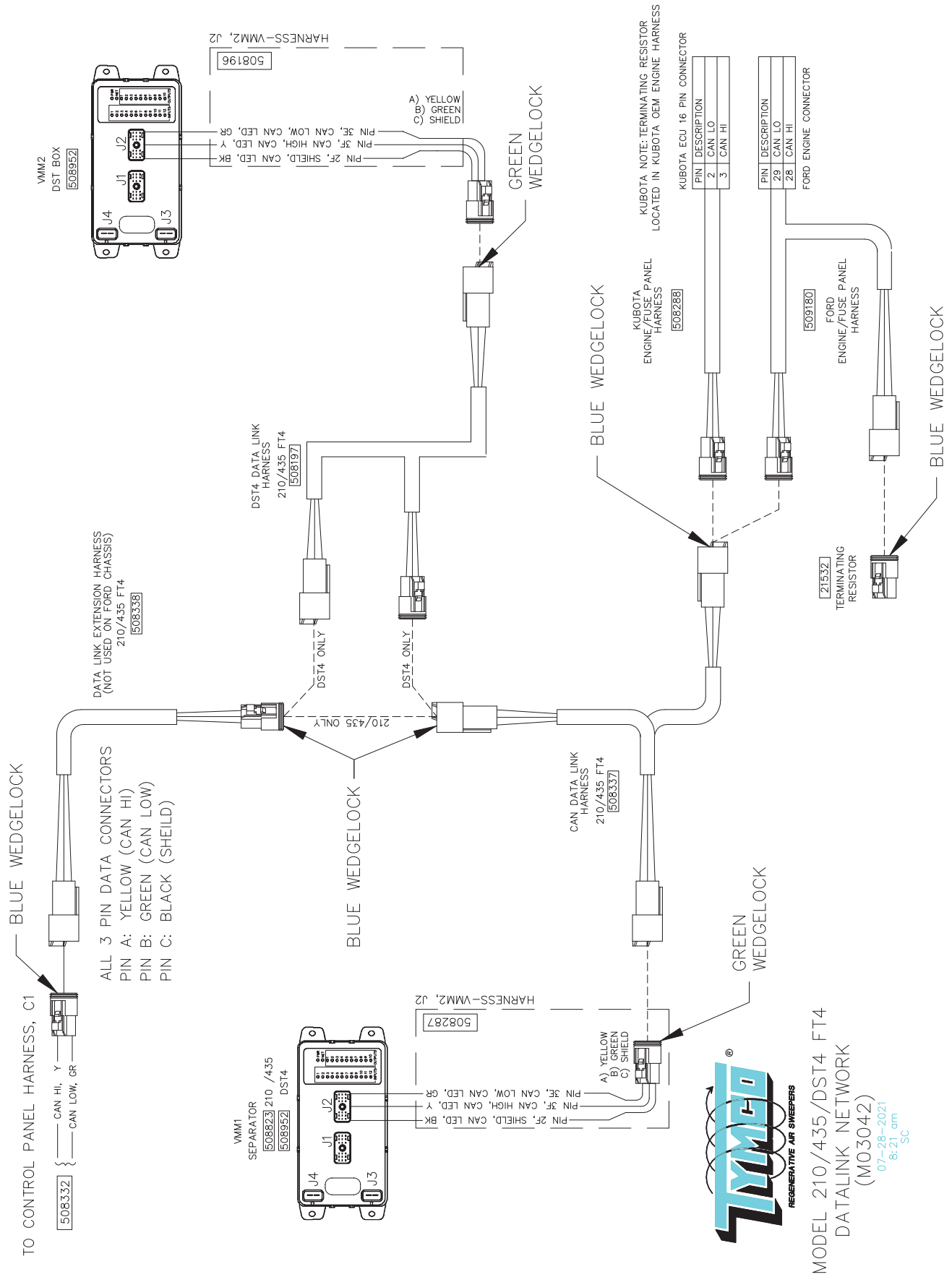
FUSE PANEL CIRCUITS

- F1: A MAIN - NOT USED
- F2: SPARE - 25A MAX
- F3: LIGHTS - 25A
- F4: HYD - 15A
- F5: WATER - NOT USED
- F6: GAGES - NOT USED
- F7: STROBE - 7.5A
- F8: HI-DUMP - NOT USED
- F9: RPM - NOT USED
- F10: LPB - 7.5A *
- F11: CLUTCH - NOT USED
- F12: SPARE - 25A MAX

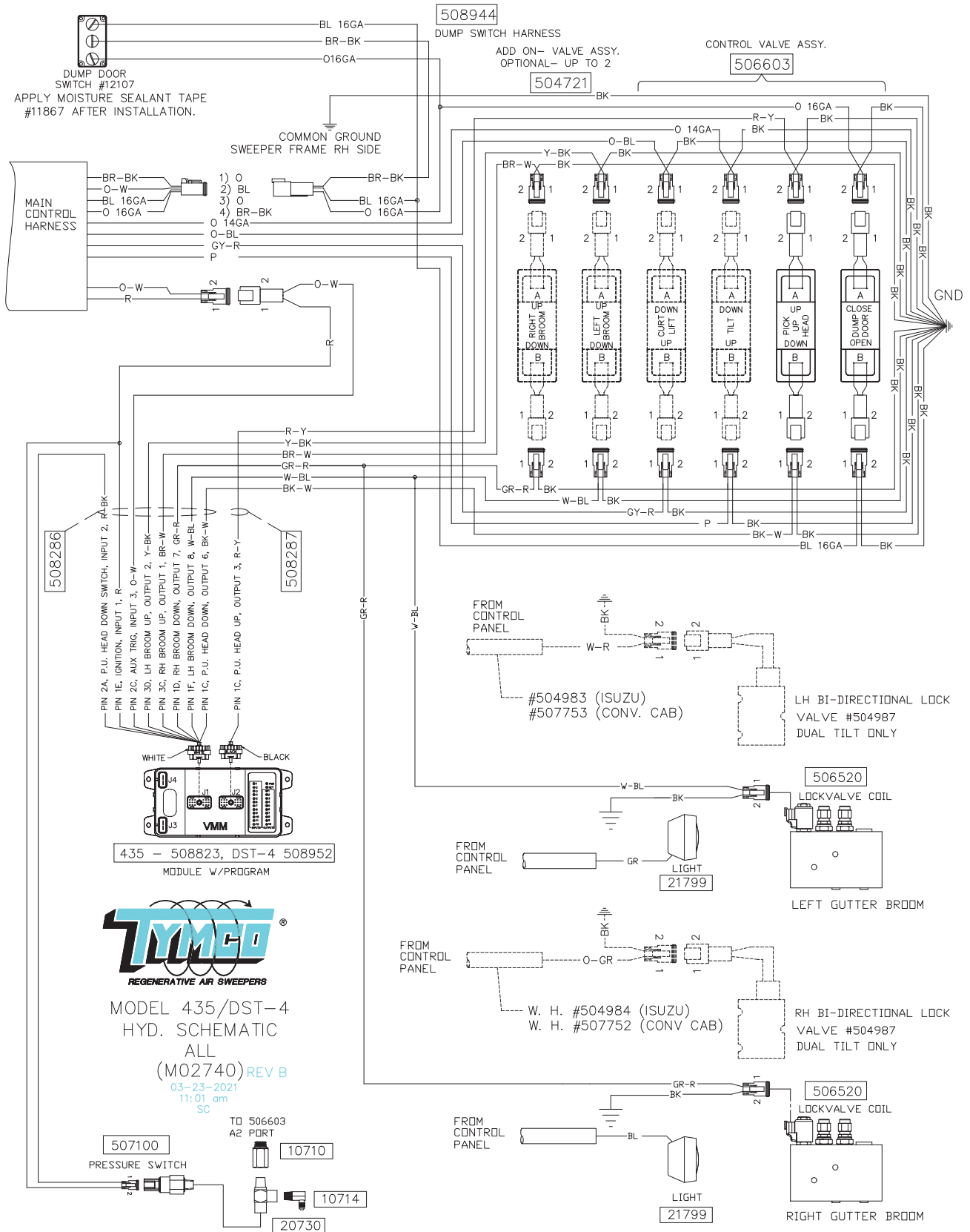


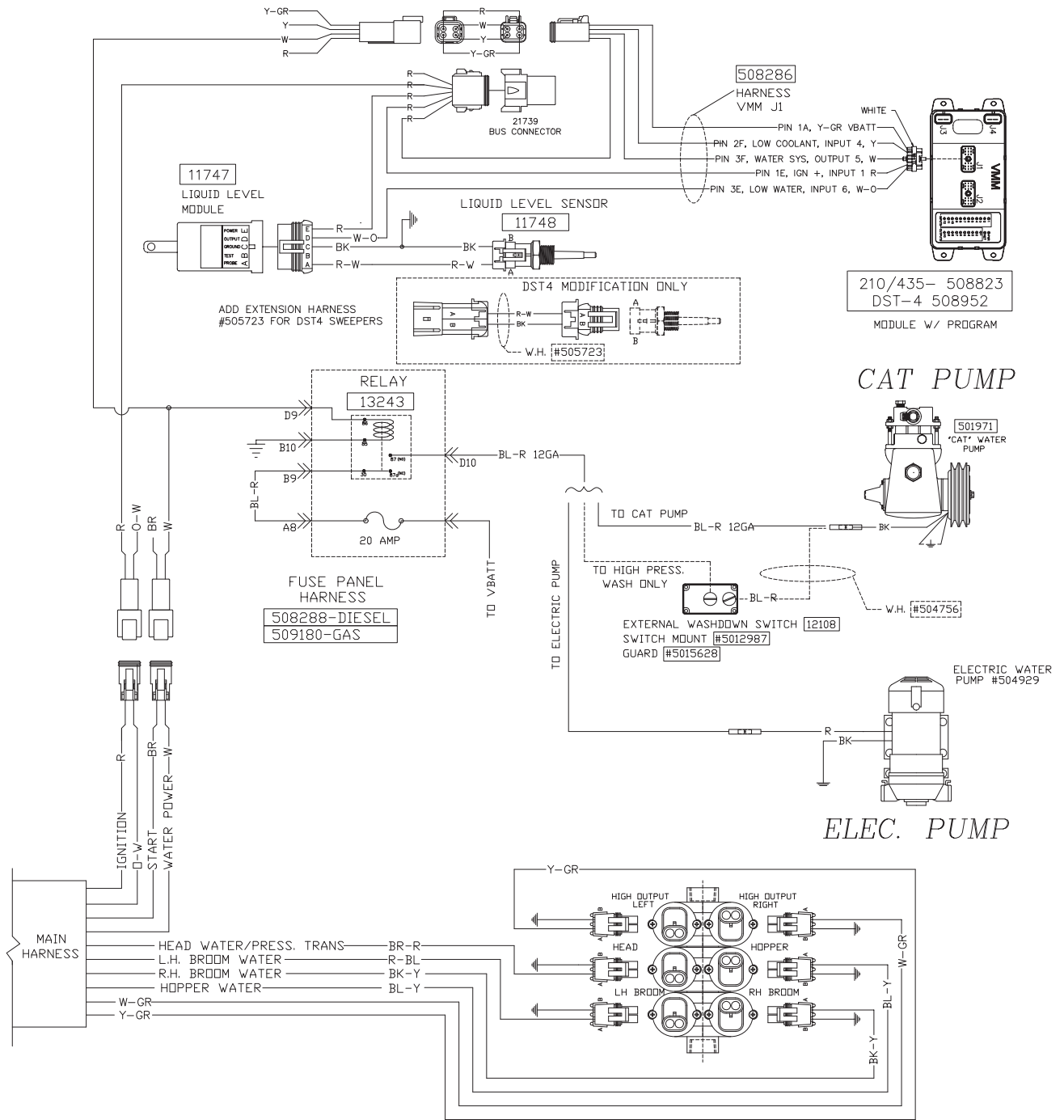
MODEL 210/435/DST-4
CIRCUIT FUNCTIONS AND FUSE PANEL
(M02739) REV E

NOTE:
PRIMARY SYSTEM FEEDS FROM FUSE PANEL
INDICATED BY BOLD LINES ON PREVIOUS PAGE.
* OPTIONAL.
** DUAL TILT OPTION ONLY.
*** ALL DST4 ONLY.



MODEL 210/435/DST4 FT4
DATALINK NETWORK
(M03042)
07-28-2021
8:21 am
SC

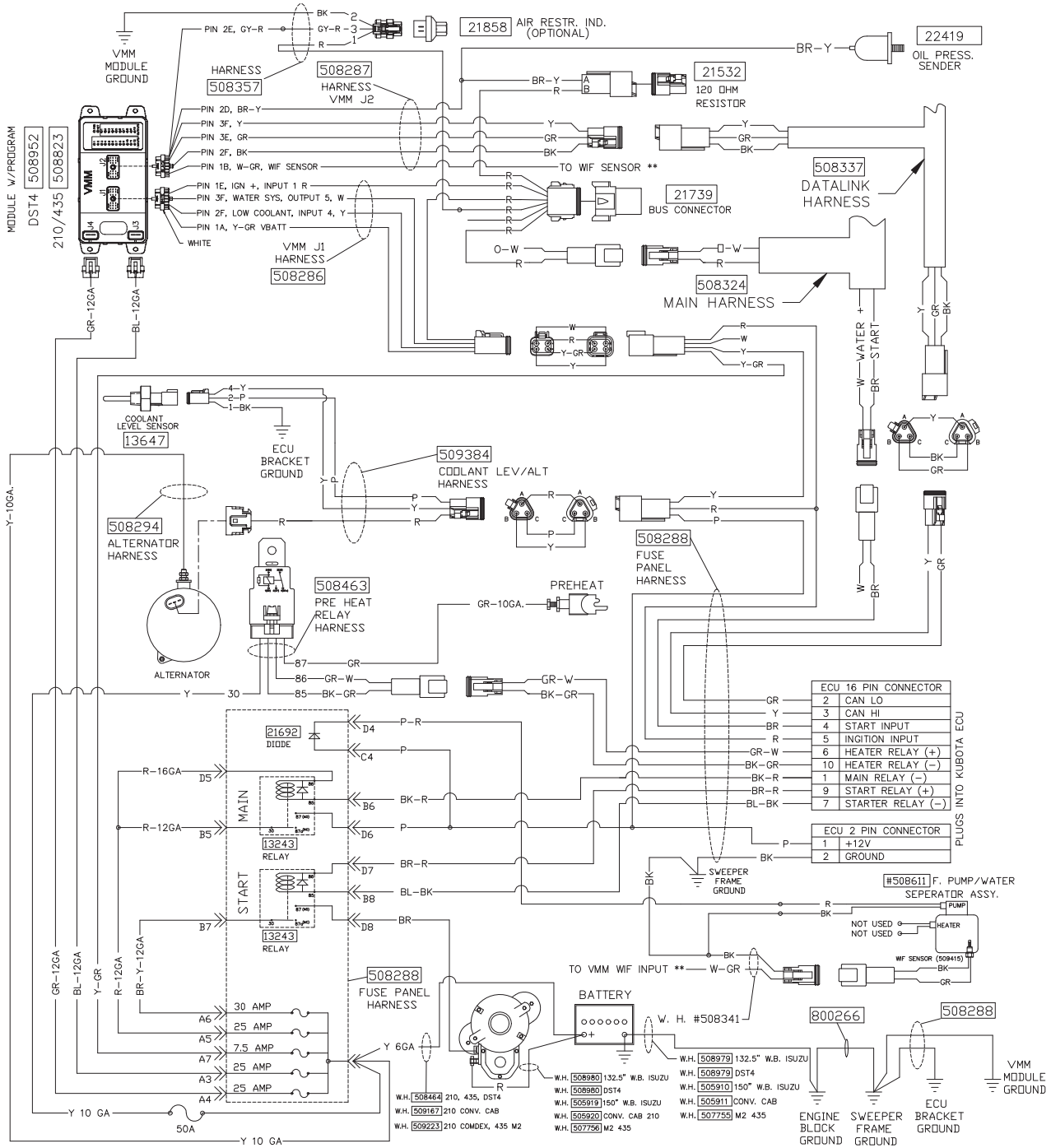




MODEL 210/435/DST-4
 WATER SYSTEM SCHEMATIC
 (M02741)

08-20-2019
 9:53 am
 SC REV D

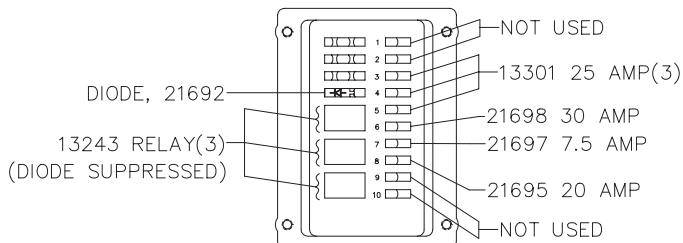
WATER MANIFOLD ASSYS:
 3-STATION #505407
 4-STATION #505402
 5-STATION #506435
 6-STATION #505403



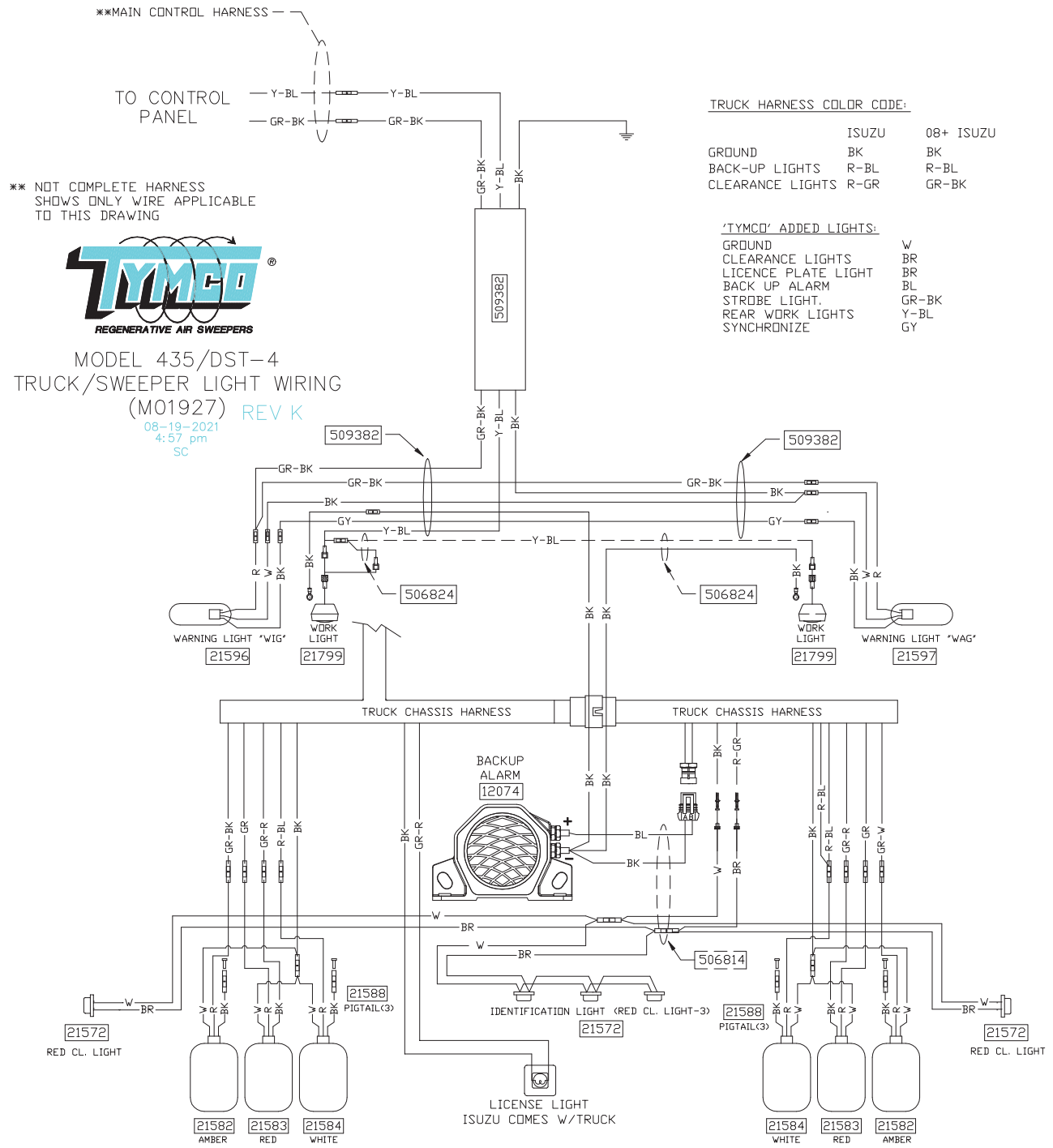
210/435/DST4 FUSE PANEL

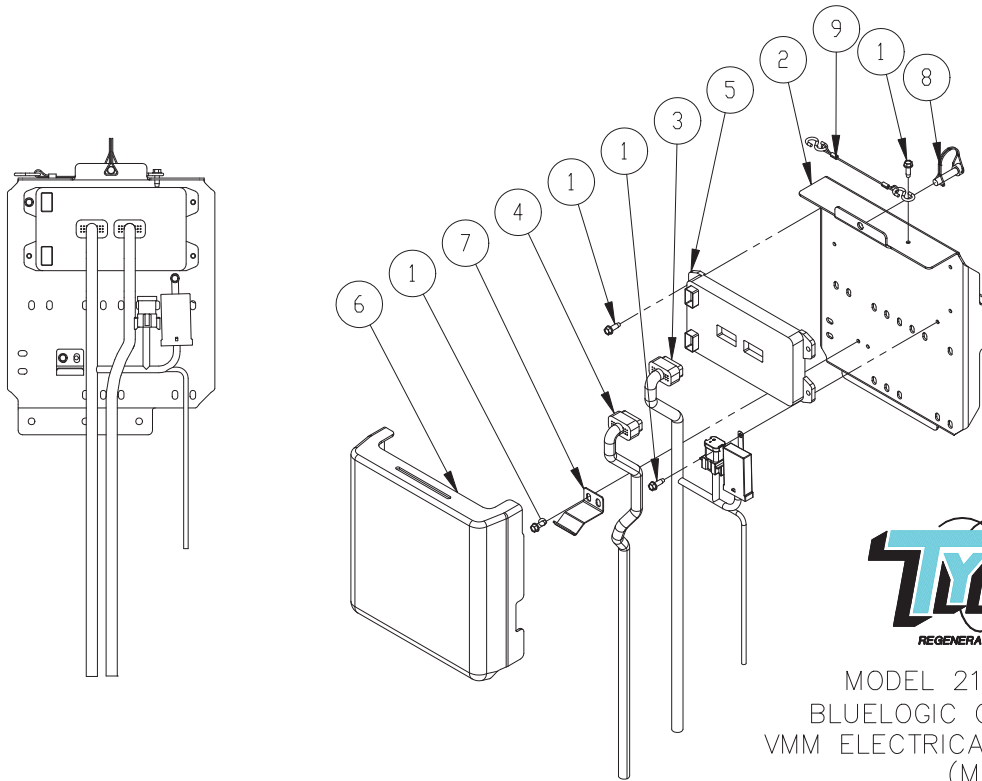


MODEL 210/435/DST-4
KUBOTA TIER 4F ENGINE
WIRING SCHEMATIC
(M02742) REV C
06-14-2019
8:27 am
MAL



*NOT SHOWN
13210- FUSE PANEL COVER
13540- FUSE PANEL COVER LOCK





MODEL 210/435/DST-4
 BLUELOGIC CONTROL SYSTEM
 VMM ELECTRICAL PANEL ASSEMBLY
 (M02793) REV A

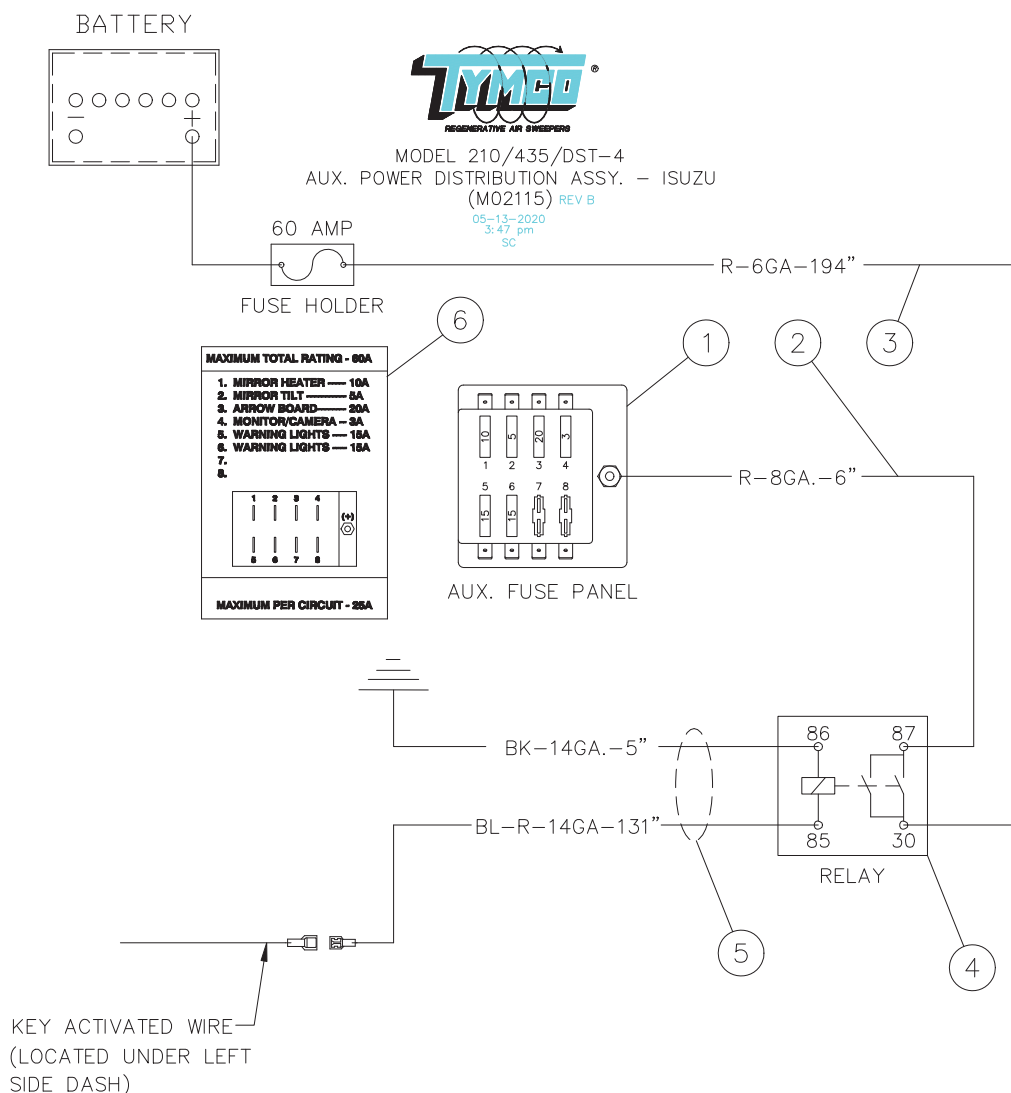
01-03-2018
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**MODEL 210/435/DST-4
 VMM ELECTRICAL PANEL
 DWG-M02793**

ITEM	QTY	PART	NO DESCRIPTION
	1	508969	VMM Electrical Panel Assembly - 210/435
	1	508970	VMM Electrical Panel Assembly - DST-4
1	6	30104	Self Tap - 1/4-20 UNC x 3/4
2	1	5021709	VMM Mount Plate
3	1	508286	Harness - VMM J1 Connector
4	1	508287	Harness - VMM J2 Connector
5	1	508823	VMM With Program - 210/435 V1.X
-	1	508952	VMM With Program - DST-4 V3.X
6	1	5021896	VMM Cover
7	1	5021919	VMM Cover Latch
8	1	10422	Safety Snap Pin - 3/8
9	1	506879	Steep Wire Lanyard Assembly

REPLACEMENT FUSES

3 AMP	11810	ATO
5 AMP	11811	ATO
7.5 AMP	11543	ATO
10 AMP	11542	ATO
15 AMP	11541	ATO
25 AMP	11540	ATO
30 AMP	11539	ATO
50 AMP	21418	MAXIATO
60 AMP	21431	MAXIATO

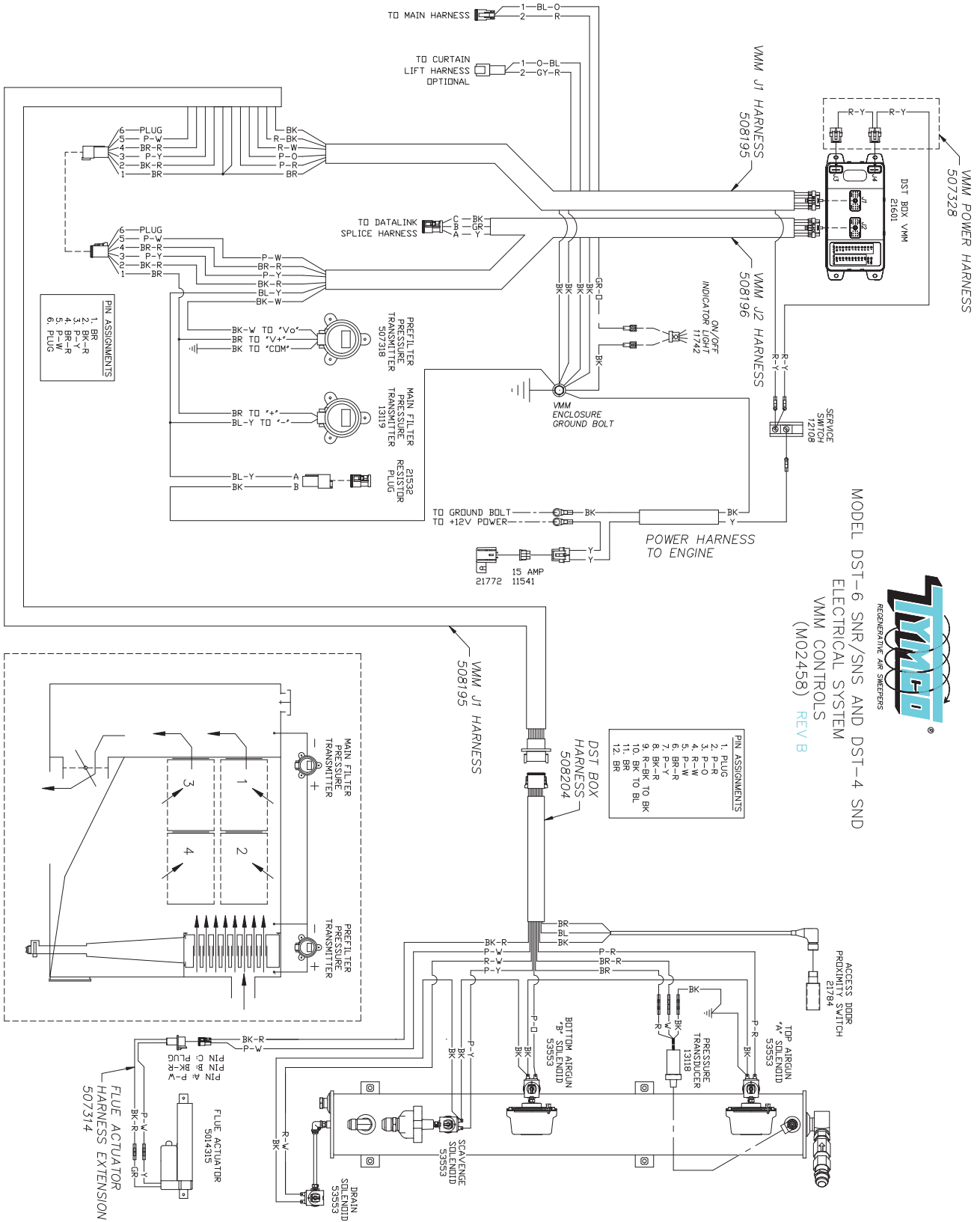


MODEL 210/435/DST-4 AUXILIARY POWER DISTRIBUTION ASSEMBLY PARTS LIST - CABOVER DWG-M02115

ITEM	QTY	PART NO	DESCRIPTION
	1	505798	Aux. Power Distribution Assembly - Cabover
1	1	11714	Aux. Fuse Panel
2	1	505287	Harness - Aux. Fuse Panel Jumper
3	1	505529	Power Supply Harness
4	1	11948	Power Relay Aux. Fuse Center
5	1	505797	W.H. - Relay Aux. Power Supply
6	1	12942	Decal - Aux. Fuse Panel



MODEL DST-6 SNR/SNS AND DST-4 SND
ELECTRICAL SYSTEM
VMM CONTROLS
(M02458) REV B





MODEL 210/435/DST-4
ISUZU/FREIGHTLINER M2
3RD EYE CAMERA ASSEMBLY
(M02281) REV E

12-19-2011
9:20 am
D6

CABLE COMES W/MONITOR

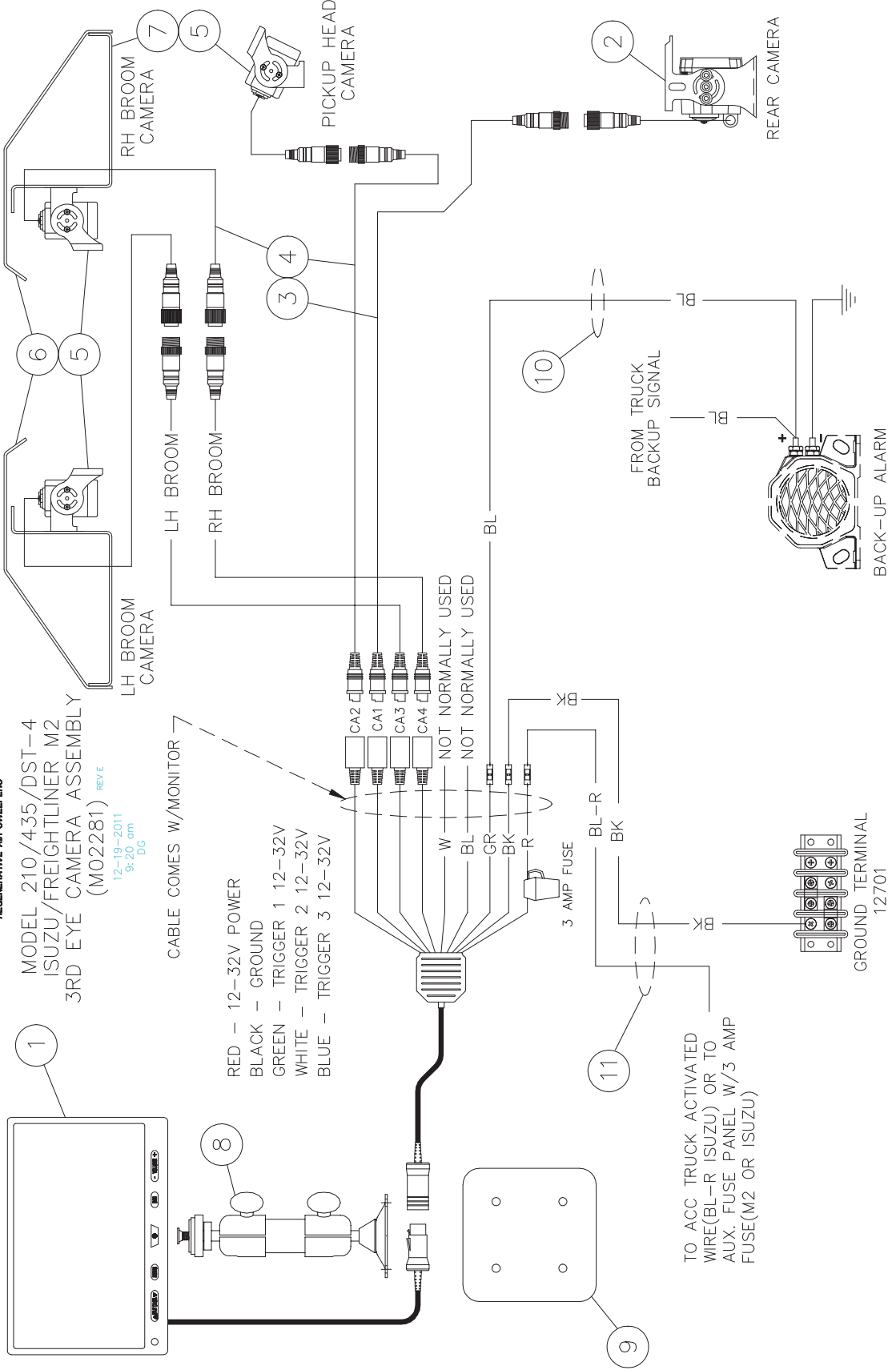
- RED - 12-32V POWER
- BLACK - GROUND
- GREEN - TRIGGER 1 12-32V
- WHITE - TRIGGER 2 12-32V
- BLUE - TRIGGER 3 12-32V

CA2
CA1
CA3
CA4
NOT NORMALLY USED
NOT NORMALLY USED

W
BL
GR
BK
R

3 AMP FUSE

BL-R
BK



M

TYMCO MODEL 210/435/DST-4 3RD EYE CAMERA ASSEMBLY - CABOVER/M2 DWG-M02281

ITEM	QTY	PART NO	DESCRIPTION
	1	507872	3rd Eye Camera Assembly - Cabover/FL M2
1	1	21816	Color Monitor - 7"
2	1	21817	Rear Camera
3	1	21822	Coax Cable - 42'
8	1	13197	Dual Swivel Mount - Monitor
9	2	5021695	Monitor Mount (Isuzu)
10	1	507285	Wire Harness - Reverse Signal (Isuzu)
-	1	507836	Wire Harness - Reverse Signal (M2) (ASI)
11*	1	505797	Wire Harness - Aux. Fuse Panel Relay
Not Shown	4	30133	Screw - #10-32 x 1/2 Pan HD
Not Shown	4	10241	Nut - #1-32 Kept (Isuzu)
Not Shown	4	20201	Nut - 10-32 Insert (M2)

* Isuzu w/out Aux. Fuse Panel

PICK-UP HEAD CAMERA

4	1	21820	Coax Cable - 25'
5	1	21818	Compact Camera

GUTTER BROOM CAMERA

4	2	21820	Coax Cable - 25'
5	2	21818	Compact Camera
6	2	5020546	Cover Mount - Mini Camera
7	2	5020547	Mount Bracket - Mini Camera
Not Shown	8	10107	Screw - #10-24 x 1/2 Pan HD Rollock
Not Shown	4	10117	Bolt - 5/16-18 x 1 HHCS
Not Shown	4	10285	Nut - 5/16-18 Insert
Not Shown	4	10305	5/16 - Flat Washer
Not Shown	4	10306	5/16 - Lock Washer

NOTE: See Option 24 for CurbView Camera/Monitor System.

AUXILIARY HAND HOSE

TABLE OF CONTENTS

SECTION N	PAGE
Function	N-1
Troubleshooter's Guide	N-1
Auxiliary Hand Hose Assembly Drawing	N-2
Auxiliary Hand Hose Assembly Parts List	N-3
Extension Options Drawing & Parts List	N-4

FUNCTION

The auxiliary hand hose is designed to clean areas inaccessible to the sweeper, pick-up head and gutter broom. The standard hand hose is a 10 foot (304.8 cm) piece of flexible hose with an aluminum 40 inch (101.6 cm) extension and is 6 inches (15.2 cm) in diameter. A shutter plate is provided to place between the removable suction transition and hopper so that the air suction can be diverted from the pick-up head to the auxiliary hand hose.

TROUBLESHOOTER'S GUIDE

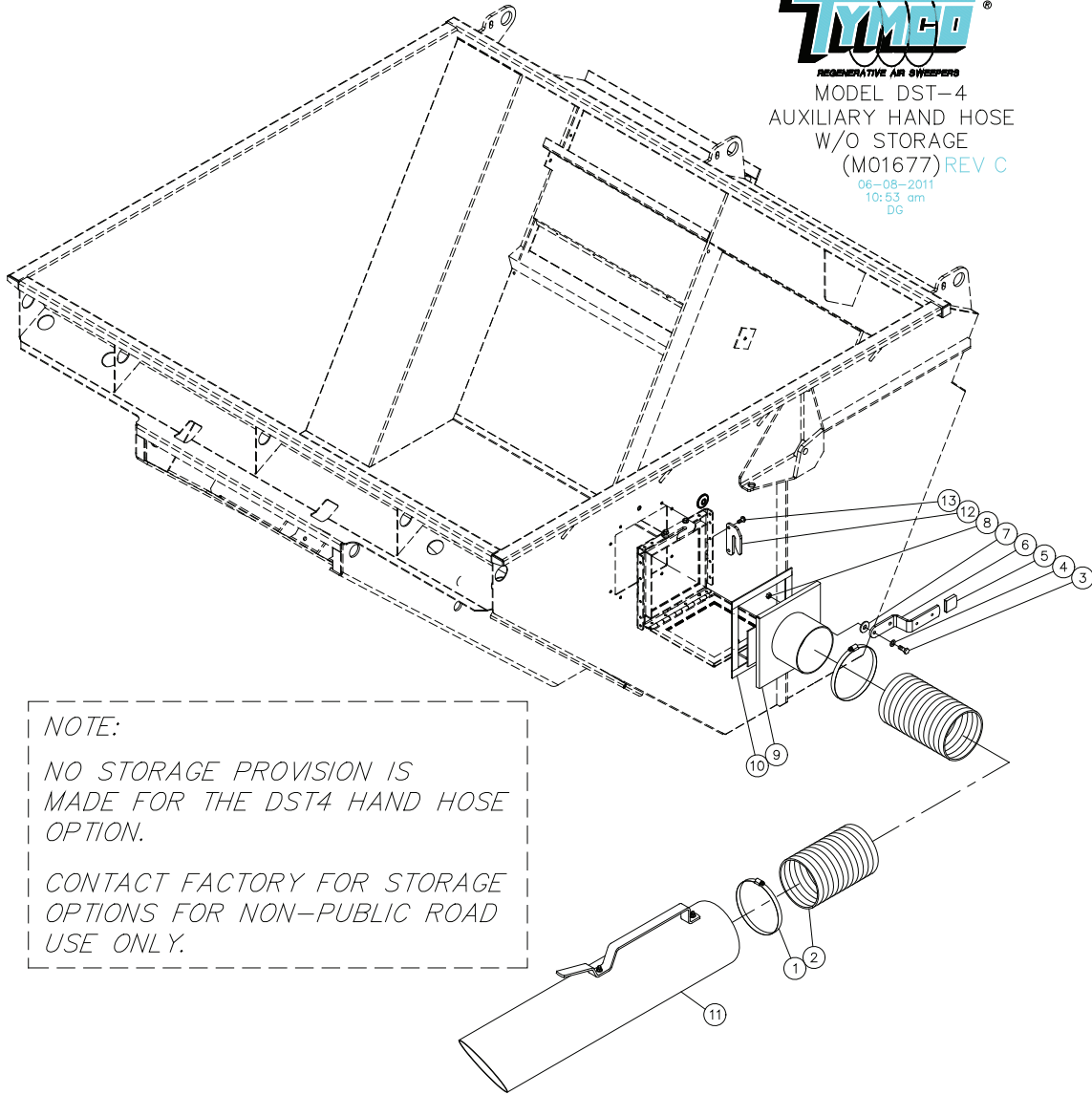
 **WARNING:** Before servicing, stop auxiliary engine and remove ignition key or disconnect negative battery cable.

PROBLEM	CAUSE	SOLUTION
Poor hand hose performance	Air leak	Check shutter plate for leaks. Check hose for tear or hole.
	Reduced air flow	Slightly raise pick-up head so air is exhausted on left side.
	Blocked hose	Check hose for material stuck inside.



MODEL DST-4
AUXILIARY HAND HOSE
W/O STORAGE
(M01677) REV C

06-08-2011
10:53 am
DG



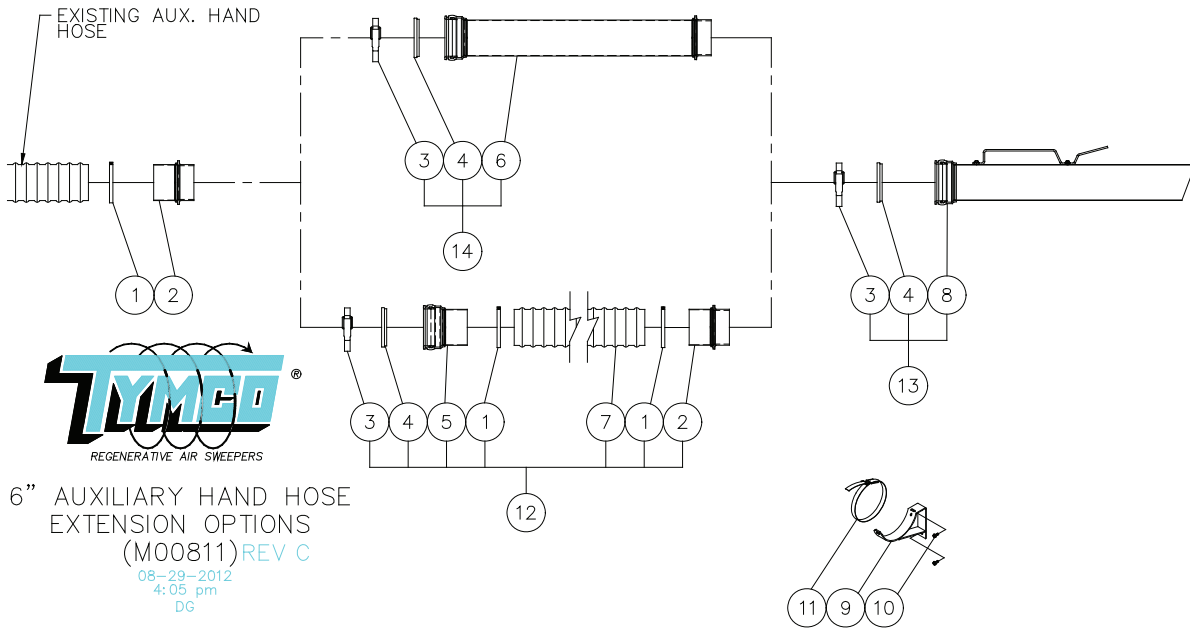
**TYMCO MODEL DST-4
AUXILIARY HAND HOSE ASSEMBLY PART LIST
DWG-M01677**

ITEM	QTY.	PART NO.	DESCRIPTION
	1	505733	Auxiliary Hand Hose Assembly w/o Storage
1	2	11312	Hose Clamp - 6"
2	1	5010821	Hand Hose - 6" x 120"
3	1	10129	Bolt - 3/8-16 x 1 1/4
4	1	10307	3/8" Flat Washer
5	1	12192	Vinyl Cover
6	1	5020499	Latch
7	1	20314	Nylon Washer - 0.39 I.D. x 1.26 O.D.
8	1	10225	Nut - 3/8-16 Top Lock
9	1	505315	Door Weldment
10	4	5017972	Door Seal
11	1	502691	6" Tube Assembly
12	1	S5020496	Handle Catch SS
13	2	10104	Bolt - 5/16-18 x 3/4 Taptite
Not Shown	1	5017881	Shutter Plate (Located in Cab)

STAINLESS STEEL HOPPER OPTION

3	1	50123	Bolt - 3/8-16 x 1 1/4 HHCS SS
4	1	10337	3/8 - Flat Washer SS
6	1	S5020499	Latch SS
8	1	20240	Nut - 3/8-16 Nylon Lock SS
9	1	S505315	Door Weldment SS
13	2	40133	Bolt - 5/16-18 x 3/4 Hex Type F SS

NOTE: The stainless hopper option BOM is NOT a complete list. The items in the stainless steel BOM replace the items in the Standard BOM. The items are numbered subsequent.



**TYMCO MODEL 210/210h/435/DST-4
EXTENSION OPTIONS PARTS LIST
DWG-M00811**

ITEM	QTY	PART NO	DESCRIPTION
1	*	11312	Hose Clamp (For Standard Hose)
2	*	500735	Hose Adapter - Male
3	*	5011969	Q.D. Clamp - Adapter
4	*	20517	Seal - Q.D. Adapter - Female
5	*	500949	Hose Adapter - Female
6	*	500758	Nozzle Extension Adapter - 42"
7	*	5010821	Hand Hose (Standard - 10' Extension)
8	*	505469	Q.D. Nozzle Assembly (40")
9	*	5011624	Bracket Assembly - Hand Hose
10	*	10104	Bolt - 5/16-18 x 3/4 Taptite (2 Reqd. Per Bracket)
11	*	5013129	Hand Hose Strap
12	*	507428	6" x 10' Std. Duty Hand Hose Ext. w/Q.D. Couplings & Clamp
13	*	507429	6" Hand Hose Nozzle w/Q.D. Coupling & Clamp
14	*	507790	6" Nozzle Ext. Adapter w/Q.D. Couplings & Clamp

* Quantities are dependent on configuration.

LUBRICATION

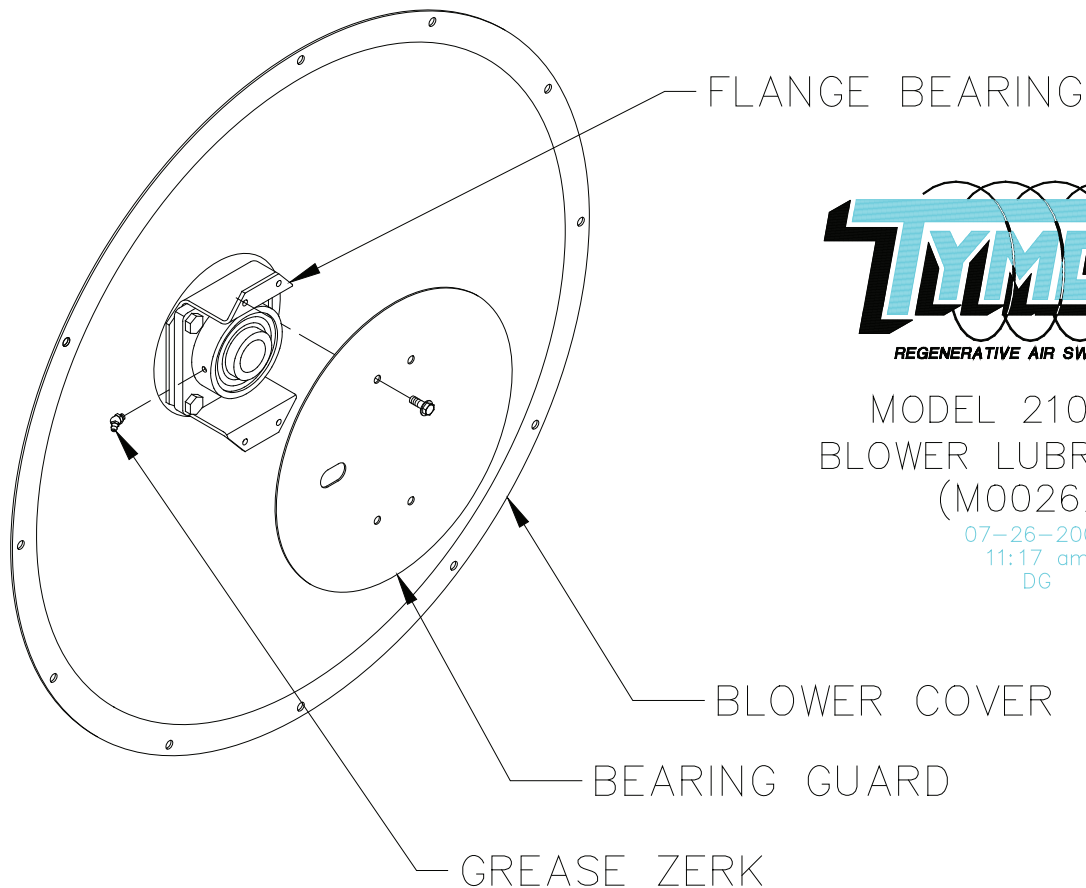
TABLE OF CONTENTS

SECTION N	PAGE
Blower.	O-1

BLOWER LUBRICATION

Located on the right side of the dust separator and the left side of the blower housing are the blower bearings. Each has a grease zerk which should be lubricated every 25 hours or once a week. Use NLGI-2 high temperature grease only (TYMCO P/N 12925 - Zeniplex 2). This is an aluminum complex grease with extreme pressure water resistance. Using a hand operated grease gun, gently apply grease until a small bead is extruded around the seal. Never use a pneumatic grease gun as grease seals can be blown out of bearings resulting in bearing failure.

⚠ WARNING: Turn OFF engine and remove ignition key before lubricating bearing on right side of dust separator.




MODEL 210/435
BLOWER LUBRICATION
(M00262) REV A
07-26-2007
11:17 am
DG

DUAL STEERING

TABLE OF CONTENTS DIESEL MODIFICATION CENTER INSTALLED

SECTION P	PAGE
General Note	P-1
Warranty Information	P-1
Instructions for Obtaining Warranty Service	P-3
TYMCO Installed Components	P-4

 **WARNING:** Before servicing, stop auxiliary engine and remove ignition key or disconnect negative battery cable.

 **WARNING:** Keep loose objects that could impede the free movement of accelerators and brakes out of the cab environment.

 **WARNING:** For Travel, DRIVE the sweeper from the LEFT SIDE ONLY.

GENERAL NOTE

The Dual Steering System has been independently installed by Diesel Modification Center, LLC. Any inquiries pertaining to this system or authorization for repair should be directed to Diesel Modification Center, LLC prior to any work being performed. If you have any service problems, **contact Diesel Modification Center, LLC or TYMCO, Inc. Do NOT contact your truck dealer (Isuzu, GMC, etc.)**

Diesel Modification Center, LLC
373 Stephens Rd.
Hazel Green, AL 35750
256-457-1726

WARRANTY INFORMATION

Diesel Modification Center, LLC Limited Warranty

All components and products manufactured and installed by Diesel Modification Center, LLC (DMC) are warranted to be free from defects in material and workmanship for either one (1) year from the date of purchase or one (1) year from the date that the vehicle was put in service by its original operator, or 12,000 miles whichever occurs first.

All DMC workmanship, whether installation of DMC products or purchased components, fabrication, or repair, is covered for the same 12 month or 12,000 mile warranty.

This limited warranty is the sole and exclusive remedy for defective products manufactured and/or installed by DMC.

This limited warranty covers only components manufactured by DMC. Except for installation workmanship, this limited warranty does not pertain to components manufactured by non-DMC suppliers and purchased by DMC, regardless of whether these components were selected or recommended by DMC.

P

Purchased Materials and Components Warranty

DMC installs many components manufactured and purchased from other suppliers. These components are covered by the warranty policies or the individual suppliers. DMC will, as a service to the buyer, pass on any warranties received from the manufacturer of these components and will process warranty claims related to supplier products unless the end user chooses to work directly with a non-DMC component supplier. DMC shall act as intermediate between the end user and the component supplier.

Non-DMC supplier policies typically differ from the DMC limited warranty. DMC has no control over the warranty policies of other suppliers and shall not deviate from a suppliers warranty without express written permission from that supplier.

Any and all claims concerning non-DMC components must be forwarded to DMC within 10 days of the discovered defect. All documentation of said claims must be accompanied with the complete identification number of the vehicle and/or a copy of the invoice. The invoice shall have complete details of failure. DMC has, at their option, a choice of whether to repair or replace the defective part at a DMC repair center or a location approved by DMC unless otherwise specified by the manufacturer.

Peripheral, Incidental, and Consequential Damages and Claims

The DMC limited warranty does not apply to damage and failure resulting from misuse, abuse, neglect, accident, improper customer/distributor installation, lack of maintenance, or acts of God. Any modifications by the buyer or any third party, without the prior written consent of DMC, may void this warranty. Operating conditions, or applications not made known to or contemplated by DMC at the time of delivery to the buyer may also void this warranty. Damages resulting from any other abnormal operation will not be covered by this warranty.

Normal maintenance, wear, and consumable items such as oils, coolants, fluids, tires, belts, hoses, filters, air cleaners, and light bulbs supplied in connection with goods or services provided by DMC are not covered under this warranty.

DMC will not reimburse for lost time, business, or business opportunity, or for any loss of use related to warranty claims. DMC will not provide or pay for the use of a rental vehicle, equipment, or tools while warranty work is performed. DMC will not reimburse for equipment or tools that are damaged, lost, or missing in conjunction with a warranty claim.

Warranty Repairs Performed by DMC or Authorized Agents

Whenever possible or feasible, warranty repairs shall be performed at a DMC facility or at an authorized distributor or dealer.

Warranty Repairs Performed by Non-DMC Entities

In certain circumstances, DMC may authorize the vehicle owner, a dealer, a distributor, or another third party to perform warranty repairs. DMC will then reimburse the entity performing the work components used and for labor to perform the repairs. Any such decisions will be based on the type of repair, the distance to the nearest approved DMC repair site, and the urgency of the repair.

DMC must grant authorization and permission before a non-DMC entity begins repair or replacement of components. Warranty claims for unauthorized and unsubstantiated work may be denied.

If DMC authorizes the buyer or a third party to repair or replace the defective parts instead of DMC doing such work itself, the buyer shall be invoiced for the replacement parts. Credit will be given pending the return of the defective parts and warranty issued by the manufacturer. Authorized warranty work not performed by DMC will be paid at the rate of \$45.00/hr.

Electrical and hydraulic components are not to be disassembled without the express written consent of DMC. All defective parts returned must be accompanied by the manufacturers' model, serial number, and date of installation. Any parts returned for warranty must be returned with freight pre-paid.

HOW TO OBTAIN WARRANTY SERVICE FROM Diesel Modification Center, LLC

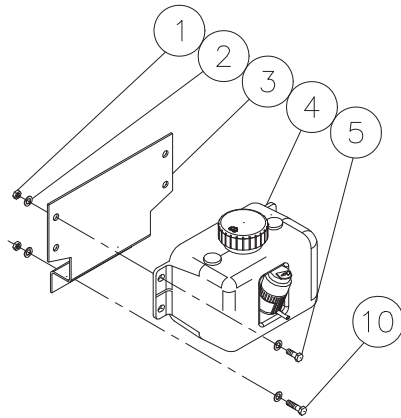
Making An Appointment For Warranty Service At A DMC Facility Or Authorized Repair Site

1. Obtain the following information:
 - Vehicle Identification Number (VIN)
 - Type, model, and serial number of failed component
 - Number of original DMC Sales Order or Job Number, if available
 - Name of the dealer that the vehicle was purchased from, if known
 - Date of purchase/in-service date
 - Description of the problem, in detail
2. Call the DMC location where your truck was built.
 - Hazel Green, Alabama 256-457-1726, ask for warranty department
 - Discuss the problem with the warranty representative to determine resolution and repair schedule

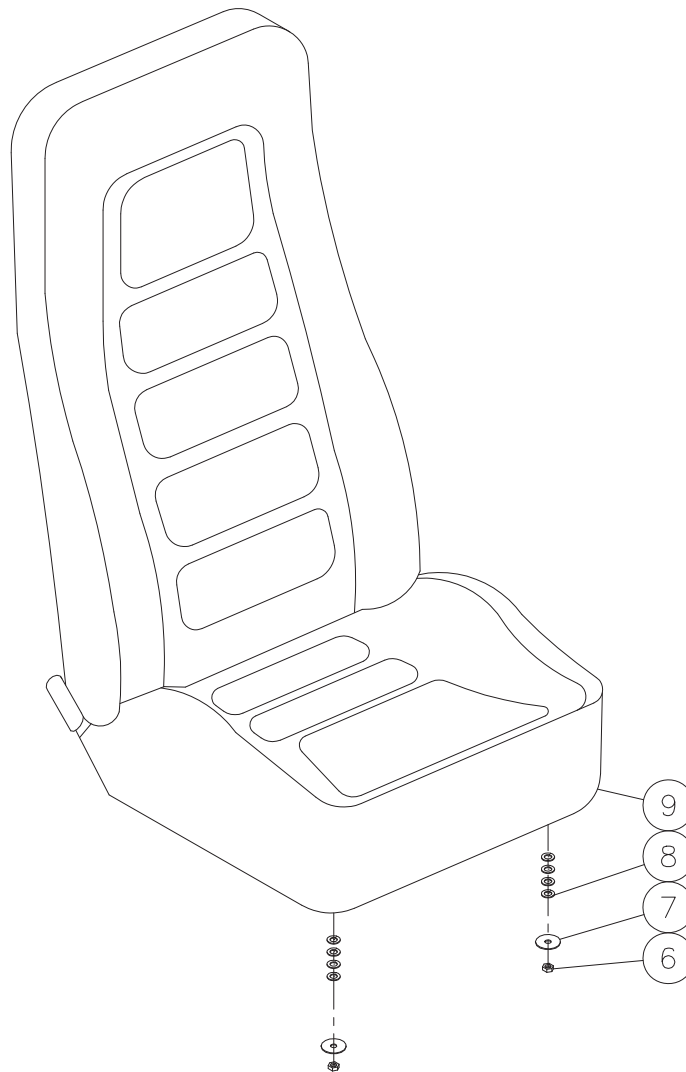
Requesting Authorization To Perform Warranty Work

1. Obtain the following information:
 - All of the information requested in item #1 above, plus:
 - Documented photographs for any physical damage. (paint, dents, etc.)
 - Inspection notes by DMC personnel or a third party representing DMC, if necessary
2. Call the DMC location where the truck was built.
3. Discuss the problem with the warranty representative to determine coverage and repair method
4. The representative will grant permission to perform the repairs if approved
5. **IMPORTANT!** The warranty representative must issue a Returned Goods Auth. (RGA) number.
6. Defective parts must be returned freight prepaid to DMC within ten (10) days with the RGA number marked on the parts.
7. If the affected component was purchased from a non-DMC supplier, please allow extra time for DMC to contact and work with the supplier.

Diesel Modification Center, LLC reserves the right to deny any warranty if the proper procedures are not followed. Proper documentation, including photographs, must be provided in order for DMC to validate and approve any claims submitted after repairs are complete.



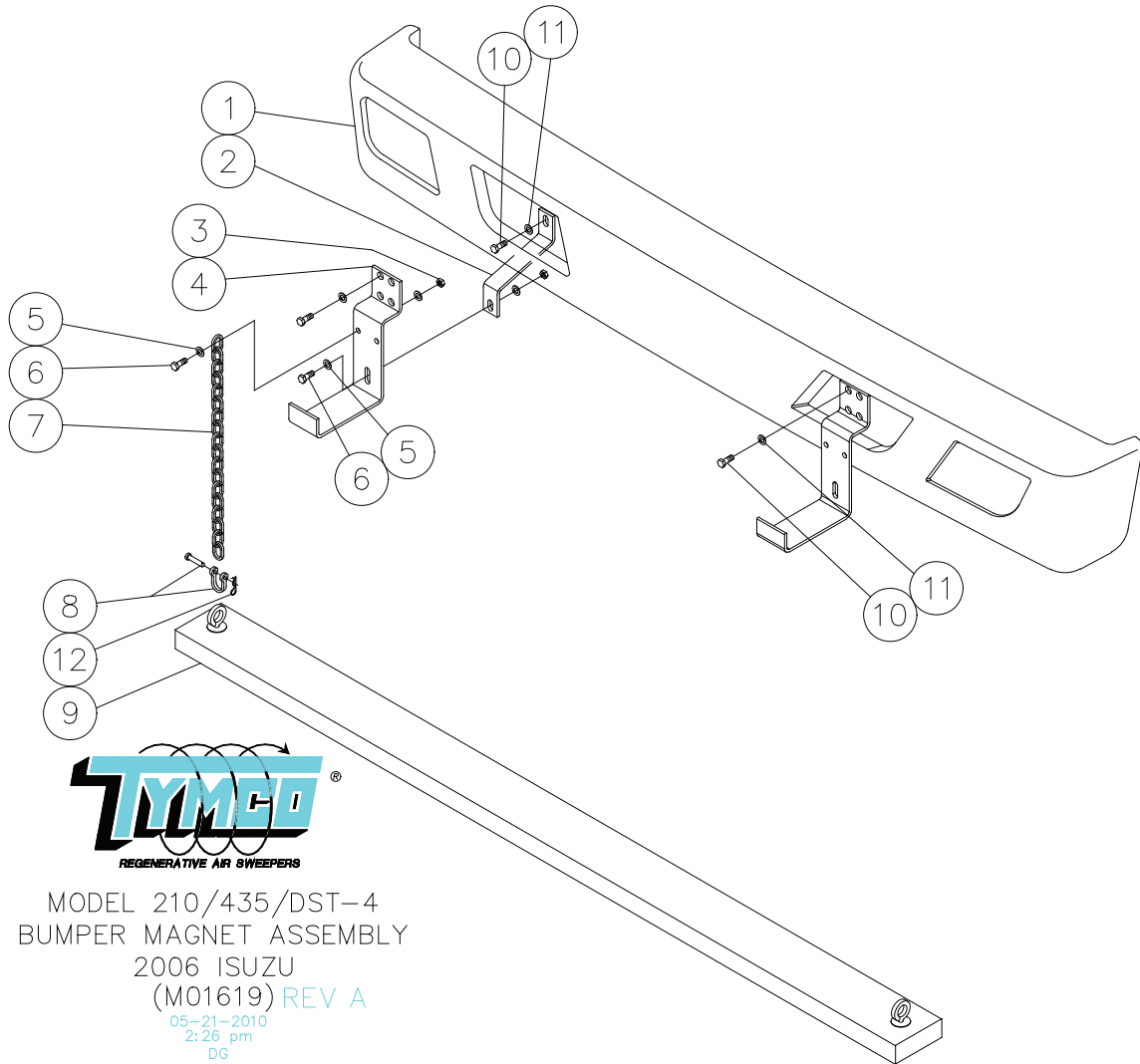
MODEL 435/DST-4
 ISUZU DUAL STEERING
 (M01991) REV B
 09-21-2020
 2:23 pm
 SC



**TYMCO MODEL 435/DST-4
 ISUZU DUAL STEERING COMPONENTS
 DWG-M01991**

ITEM	QTY.	PART NO.	DESCRIPTION
	1	507072	Dual Steering Components
1	6	10274	Nut - 1/4-20 Kept
2	12	10303	1/4 - Flat Washer
3	1	5020403	Mount - Washer Fluid Tank
4	1	507405	Assy. - W.S. Wiper Tank/Pump
5	6	10110	Bolt - 1/4-20 x 3/4 HHCS
6	4	10206	Nut - 5/16-18 Nylon
7	4	10350	5/16 - Flat Washer
8	16	10305	5/16 - Flat Washer
9	1	12952	Adjustable Seat (RH)
10	1	10111	Bolt - 1/4-20 x 1 HHCS

MAGNET




 REGENERATIVE AIR SWEEPERS
 MODEL 210/435/DST-4
 BUMPER MAGNET ASSEMBLY
 2006 ISUZU
 (M01619) REV A
 05-21-2010
 2:26 pm
 DG

TYMCO MODEL 210/435/DST-4 ISUZU MAGNET ASSEMBLY PARTS LIST DWG-M01619

ITEM	QTY.	PART NO.	DESCRIPTION
1	1	506237	Magnet Assembly Isuzu
1	-	(Comes w/truck)	Front Truck Bumper
2	2	5019223	Bracket, Bumper Support
3	4	10225	Nut - 3/8-16 Top Lock
4	2	5019222	Mount, Bumper Magnet
5	8	10307	3/8" Flat Washer
6	4	10129	Bolt - 3/8-16 x 1-1/4 HHCS
7	2	5014388	Chain - 1/4" - 22 Links
8	2	12154	5/16" Round Pin Anchor Shackle
9	1	22384	Magnet Assembly
10	-	(Comes w/truck)	Bolt
11	-	(Comes w/truck)	Washer
12	2	12155	Hitch Pin Z/P

DST-4 SYSTEM

TABLE OF CONTENTS MODEL DST-4 SND SERIES

SECTION R	PAGE
Function	R-1
Precautions.	R-4
Troubleshooter's Guide	R-6
DST Box - DST-4 Components Assembly Drawing	R-8
DST Box - DST-4 Components Assembly Parts List	R-9
DST Box Subassembly - Common Parts Drawing	R-11
DST Box Subassembly - Common Parts List.	R-12
DST Flue Assembly	R-15
DST Air Tank Assembly	R-16
VMM Enclosure Assembly	R-17
DST Cleanout Door Assembly Drawing	N-18
DST Cleanout Door Assembly Parts List	N-19
DST Box Access Door Assembly	R-20
DST Box Access Door Weldment Assembly	R-21
DST Box Filter Cover Assembly	R-22
Basic Operation	R-23
Routine Maintenance	R-24
DST Filter/Separator Assembly	R-25
Air Compressor Service	R-26

FUNCTION

Sweepers equipped with the optional 435 Dustless Sweeping Technology (DST) allow the pickup head to sweep virtually dust free without the use of external water spray nozzles. A filter box assembly is located just behind the cab and is used to filter a small percentage of air bled from the pressure side of the sweeper. Bleeding this air creates more suction beneath the pickup head causing the dustless effect.

DESCRIPTION OF OPERATION

Control of the amount of air bled off is fully automated and requires the operator to simply turn on the DST-4 control switch (labeled "DST MODE") at the sweeper console in the cab. Turning on this switch activates a control system which opens and closes a flue plate (See M01307) to control the amount of air bled from the pressure side of the sweeper. The system has been set to bleed off the minimum amount of air required to maintain the dustless sweeping effect regardless of blower RPM. The lower set point is 1.8 inches of water column and the upper set point is 2.2 inches creating a 2 inch nominal setting. Should the operator increase or decrease the blower RPM, the system reacts to open or close the flue plate to maintain the 2 inch nominal reading. The set points are not adjustable.

R



M01307

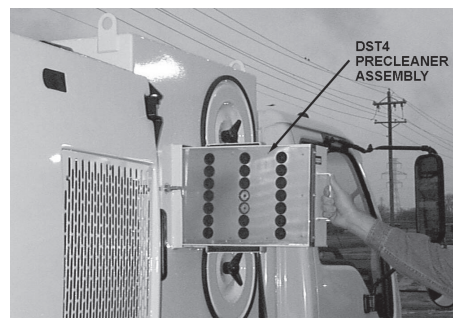
Should too little air be bled off, over pressure of the pickup head will occur and dust blow out will result. Too much air bled off will decrease filter operational life as excess air flow will deposit more dust on the filter media.

PRECLEANER

The air which has been bled off is sent through a centrifugal precleaner that rids the air of most dust particles before passing the air through four large filter cartridges and is then exhausted to atmosphere. The precleaner also removes moisture from the air stream protecting the filters and thereby allowing the sweeping of intermittent accumulations of water, such as water puddles from sprinkler systems, without jeopardizing the filtration components.

The precleaner dumps the separated debris into a scavenge bin that has a scavenge hose attached and routed back to the hopper. The hopper vacuum draws the dust from the pre-cleaner scavenge bin through the scavenge hose back to the sweeper hopper for deposit. Proper performance of the precleaner requires that the scavenge hose be kept open and free flowing. The precleaner should be removed once a day and dumped out to insure good separation and unloading of dust into the scavenge bin. The scavenge bin then can be inspected to see that it is NOT full of dust and that the scavenge hose is pulling the unloaded dust back to the hopper. If the scavenge bin is full of dust, the scavenge hose has become blocked and must be cleaned. **The scavenge hose should be cleaned daily.**

To assist in keeping the scavenge line clear, the purge system periodically pulses a blast of air down the scavenge line. The frequency of the scavenge line pulse is simultaneous with every third back pulse of the DST filter cartridges.



M01507

To insure the best operation of the precleaner, the **HOPPER WATER** should be **turned on** and run whenever possible. The hopper water rids the air stream of a significant amount of dust and reduces the particulate load seen by the precleaner.

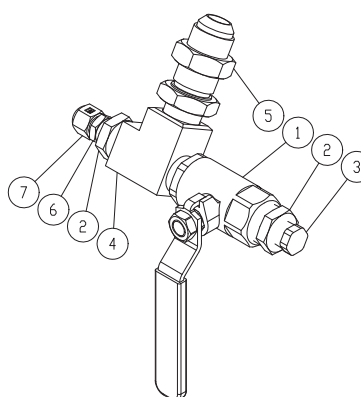
Once the air has passed through the precleaner, it enters the filter box. Four (4) filter cartridges on two separate rows make up the filter pack. Dust accumulating on the filter cartridges is periodically purged by alternately discharging a high velocity back pulse of air into the filter row. The back pulse of air dislodges the dust from the filter media and deposits it in the filter box hopper.

NOTE: The purge control switch is located on the sweeper console in the cab.

Proper performance of the dustless sweeper requires the filters be kept free flowing as measured by the minihelic restriction indicator gauge at the sweeper control console in the cab. Readings **above 8"-10" water column (WC)** generally result in dust blowing out the sides of the pickup head. The operator should stop and allow the purge system to clean the filters back down to **3"-5" WC restriction** and then proceed with sweeping. Depending on the age of the filters, purging the filters clean could take from 5-15 minutes. Again, running the hopper water will significantly increase the filter operational life.

A control provision has been made to allow the operator to turn off the dustless feature of the sweeper. This is separate from the filter purging system. When the DST-4 control switch is turned off, air is no longer exhausted through the DST-4 box. This allows the operator to purge the filters much quicker because no dirty air is flowing to them. This also allows the sweeper to sweep in wet weather conditions where the dustless feature is not required.

Additionally, a shop air provision (See Illustration M01306) has been made to allow the purging of the DST-4 filter pack without running the sweeper auxiliary engine. The shop air must be regulated to 95-100 PSI, **excessive pressure will damage the filter media!** This provision allows the filters to be purged without dirty air recharging them and can be done for an extended time such as at the end of the week to get the sweeper ready for the next week of operation.



MODEL DST-4/DST-6
SHOP AIR FILL ASSY
(M02565)
10/7/14
4:52 PM
SC

**TYMCO MODEL DST-4/DST-6
SHOP AIR PURGING SYSTEM - FILL PORT
DWG-M02565**

ITEM	QTY	PART NO	DESCRIPTION
	1	508355	DST Shop Air Fill Assembly
1	1	12862	Fitting - 1/2 Bronze Ball Valve
2	2	10845	Fitting - 1/2 x 1/4 Reducer
3	1	10847	1/4" Pipe Plug
4	1	10868	Fitting - 1/2 Street Tee
5	1	13186	Fitting - 5/8" JIC - 1/2 MPT Bulkhead Str.
6	1	20829	Fitting - 1/4 JIC x 1/4 Pipe
7	1	20855	Fitting - 1/4 SAE Cap

Finally, to protect the filtration box from over pressurization, a pressure relief port limits the box pressure to 25 inch WC.

R

PRECAUTIONS

The TYMCO DST feature is intrinsically simple and safe to operate. However, a few operational and service precautions should be followed when working around the filter box area.

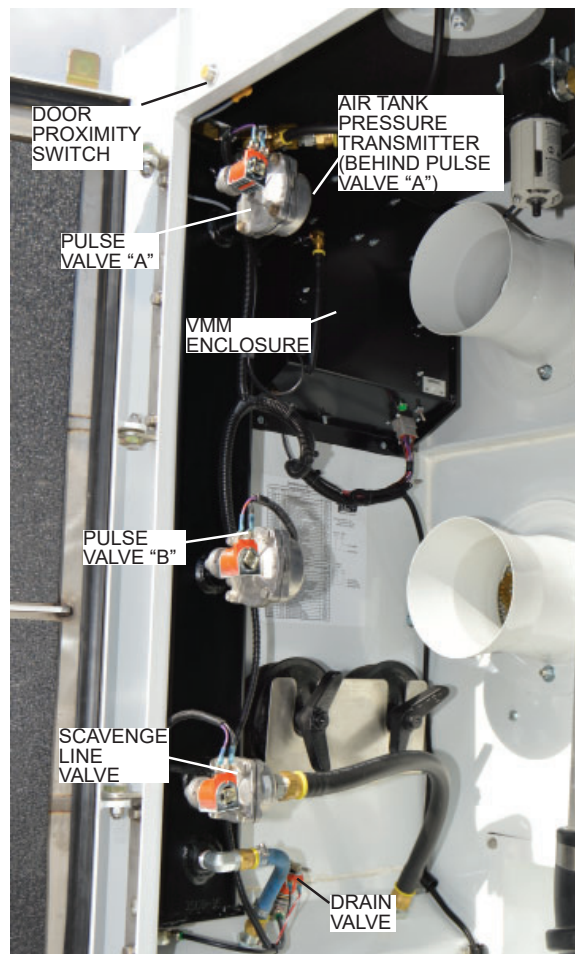
SAFETY

Do Not open the filter box large access door without first turning off the sweeper ignition key on the sweeper control console in the cab. This prevents the high velocity purge back pulse from discharging when in this area. A proximity sensor at the top of the service door also prevents the purge system from engaging when the door is open.

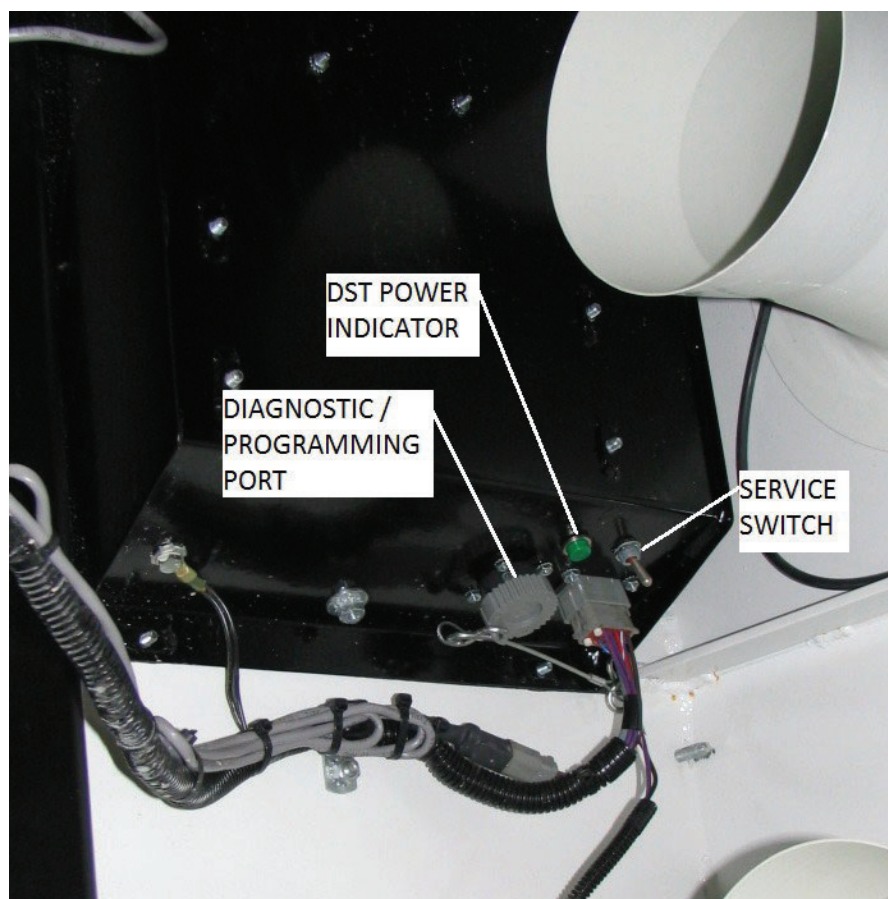
Always bleed down the air tank pressure before working inside the DST box. Use the ball valve at the shop fill port to drain the air tank.

Once the access door is open, turn off the service switch located on the bottom of the VMM enclosure. (Illustration M01309). This turns off the power to the VMM control module and all components of the DST system. If the door is open, with the sweeper ignition and the service switch is in the on position, the DST Power Indicator Light will flash to indicate the system is still active. If the Power Indicator Light is on solid, the purge system is active and could fire at any time! This condition cannot occur with the door open, unless the service door proximity switch is bypassed.

Use a dust mask when servicing the filters or precleaner or when cleaning out the filter box hopper.



M01309



M01309A

SERVICE

ATTENTION: TYMCO guarantees that the DST Sweeper will perform properly provided that only TYMCO supplied replacement components are used when servicing the sweeper. **REQUEST ONLY TYMCO BRAND REPLACEMENT PARTS!**

Do Not over service the four large filters! Restriction readings below 6" WC, clean filters by turning on purge system as described previously.

TYMCO filter cartridges (P/N 12734) may be washed off using **LOW** pressure hose and gently spraying the filter pleats. Allow filter to dry overnight before using.

Use care not to drop the filter or otherwise damage the metal filter ends.

Should the filter become coated with dry mud, wet down, allow to soften, then wash as described above.

Any filter found to have a hole in the filter media should be replaced.

The purge system uses up to 100 PSI of air pressure, always bleed down the system before servicing components. Use the ball valve at the shop fill port to drain the purge manifold.



WARNING!: Do not service air compressor until after it has cooled. Severe burns can occur from touching compressor exhaust components.

R

TROUBLESHOOTER'S GUIDE

PROBLEM	CAUSE	SOLUTION
Sweeper blows out dust from pickup head skid plates	Damper flue plates closed	Make sure the DST Mode switch on the control panel is in the "ON" position and VMM Input #3 LED is on
Dustless system not functioning	Blown fuse or bad electrical connection	Check DST circuit fuse at sweeper console Check DST VMM power fuse at battery Make sure service switch is in the "ON" position and the VMM power light is on steady.
	Air leaks, bad seals or doors not closed	Make sure all seals are in good condition and all sweeper hopper service doors are closed. Make sure front pickup head curtains are in good condition. Check pickup head blast orifice gap, if too large, pickup head will "blow out".
	Precleaner stopped up	Remove precleaner and observe tube openings. Remove any trash or obstruction.
Flue Plate fully open and will not close	Precleaner stopped up	See Above.
	Curtain lifter on	Turn Curtain Lifter off
	Blast orifice not set properly	Check pick-up head blast orifice gap, if too large, pick-up head will "blow out".
	Bad flue actuator or harness	Turn off DC mode switch and observe the output LED 9 and 10. They should come on solid for 15 seconds. If the flue does not close, the actuator or the harness is bad.

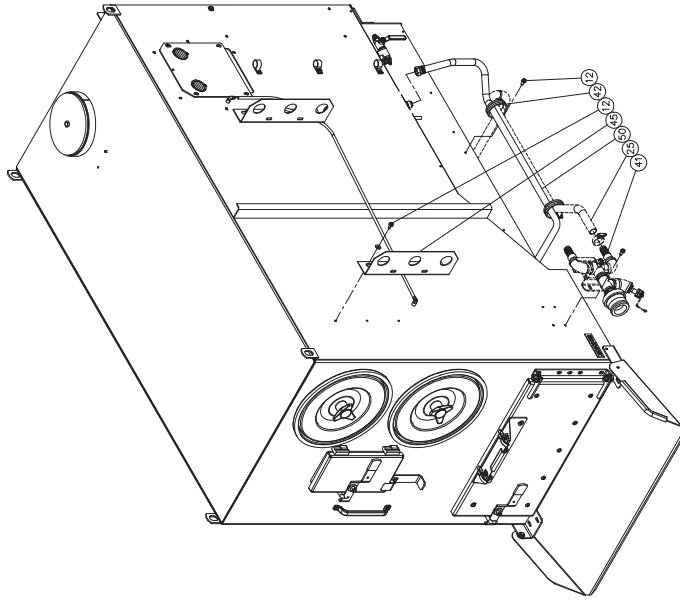
TROUBLESHOOTER'S GUIDE CONTINUED

PROBLEM	CAUSE	SOLUTION
Flue Plate fully open and will not close (Continued)	Thin air due to high altitude over 5000 feet	If the Magnesense gauge is reading below 1.8", and the head is set properly, block off some of the tubes in the precleaner.
Purge System will not pulse	Blown fuse	Check DST circuit fuse at sweeper console Check DST VMM power fuse at battery
	Door closed prox input #2 not on	Close door Check prox switch
	Air pressure not at correct PSI.	Check air pressure gauge at sweeper control panel. Pressure must be above 90 PSI. If air tank pressure is above 90 PSI, pressure switch input #7 should be on. Check and replace switch.
	Service switch not engaged	Turn on service switch
	Purge switch input #4 is not on	Make sure the Purge switch is in the "ON" position. Check harness between switch and module.
	No air pressure	Check that shop air valve has not been left open.
	Air compressor malfunction	Check condition of air compressor drive belt. Replace if needed. Check condition of air compressor regulator for low pressure.

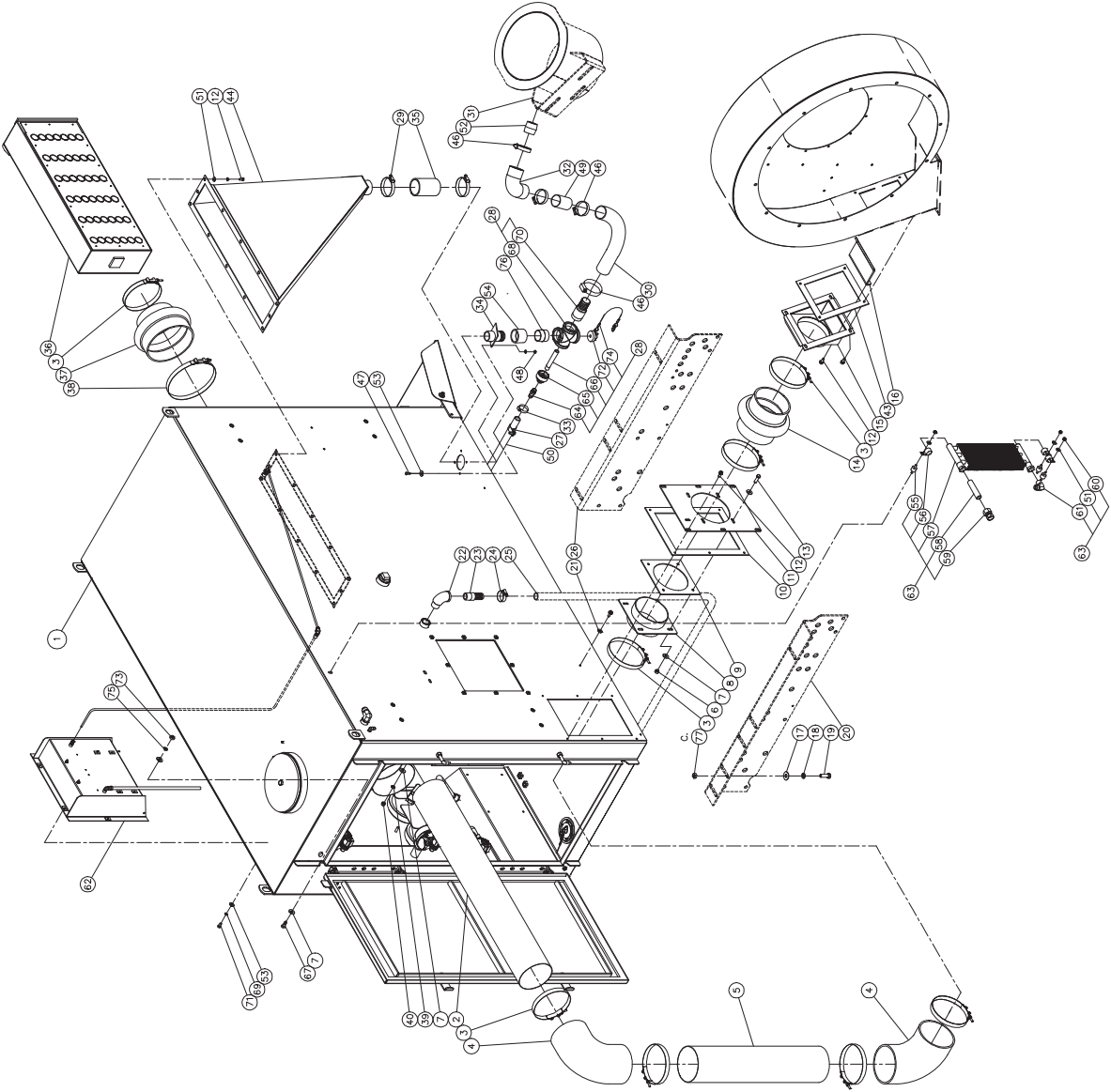


— FOR SAFETY —
Stop all engines and set parking brake before servicing.
 — READ YOUR MANUAL —

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MODEL DST-4
DUSTLESS BOX ASSY - DST-4
(M02839) REV B
8/22/21 AM
SC



**TYMCO MODEL DST-4
DST BOX ASSEMBLY - DST-4 COMPONENTS
DWG-M02839**

ITEM	QTY	PART NO	DESCRIPTION
	1	508955	DST Box Assembly - DST-4 Components
1	1	508214	Dustless Box Subassembly
2	1	5018353	Transfer Tube - 6" x 42"
3	7	11375	Hose Clamp 6" HD
4	2	20569	6" I.D. Rubber Elbow
5	1	5018352	DST4 Transfer Tube - Short
6	4	10225	Lock Nut - 3/8 UNC
7	13	10307	Flat Washer - 3/8
8	1	505681	DST4 Inlet Adapter
9	1	5018396	Adapter Plate Seal - DST4
10	1	5018024	DST4 Inlet Flange Seal
11	1	5018333	Adapter Plate - DST4
12	52	10104	Self Tap - 5/16-18 UNC x 3/4
13	4	10129	Bolt - 3/8-16 UNC x 1 1/4
14	1	20570	6x6 Hump Hose
15	1	505661	DST4 Bolt-On Bleeder
16	1	5018340	Diverter Vane
17	6	10311	Flat Washer - 1/2
18	6	10312	Lock Washer - 1/2
19	6	10139	Bolt - 1/2-13 UNC
20	(Part of Truck Assy.)	5019857	LH Sil
21	11	10302	5/16 x 3/4 Bonded Seal Washer
22	(Part of Water System)	20666	Fitting - 1" Street Elbow 90°
23	(Part of Water System)	10671	Fitting - 1" NPT King Nipple
24	(Part of Water System)	11335	Hose Clamp - 7/8 - 1 3/4
25	(Part of Water System)	5020033	Hose - 1" x 110"
26	(Part of Truck Assy.)	5019856	RH Sil
27	2	11362	Clamp - 1-1/8" Heavy Duty Dipped
28	1	508313	2" Plug Assembly
29	1	11321	Hose Clamp - 1-1/8 Heavy Duty Dipped
30	1	5021248	Scavenge Hose - 2 x 23"
31	(Part of Hopper)	505690	Suction Adapter
32	1	10533	Rubber Elbow
33	1	11318	Hose Clamp - 5/8 to 1-14
34	1	506318	Adapter - Scavenge Hose
35	1	5019510	Hose - 2 1/2 x 5
36	1	507017	Strata Panel - DST-4
37	1	20571	8x6 Hump Hose Reducer
38	1	11354	8" HD Clamp
39	3	10308	Lock Washer - 3/8
40	3	10209	Nut - 3/8 UNC
41	1	506984	Water Fill Assembly
42	2	11345	Clamp - 3" Rubber Lined
43	1	5018379	Seal - Air Bleeder
44	1	506347	Scavenge Bin
45	2	5015170	Tool Holder
46	5	11320	Hose Clamp - 1.50-2.38
47	4	10110	Bolt - 1/4-20 x 3/4 HHCS
48	4	10246	Nut - 1/4-20 Top Lock
49	1	5017485	Nipple - 2" OD x 3.00

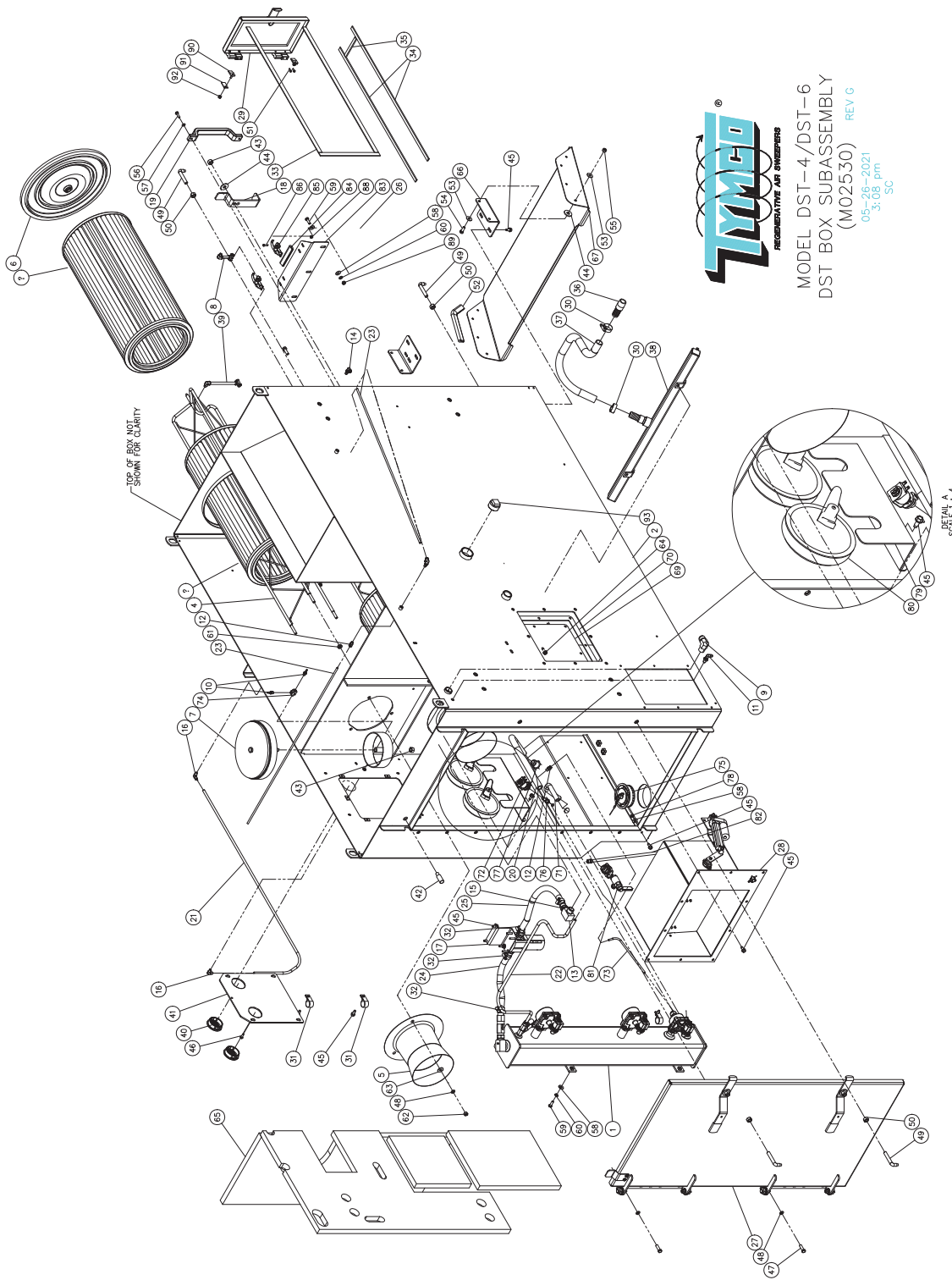
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ITEM	QTY	PART NO	DESCRIPTION
50	1	508349	Hose - 3/4 x 92"
51	18	10305	Flat Washer 5/16
52	1	10641	Fitting - 1 1/2" Galv. Close Nipple
53	14	10303	1/4 - Flat Washer
54	1	20646	Fitting - 2" Coupling Glav.
55	3	20577	Sandwich Flexbolt
56	3	11362	Heavy Duty Dipped Clamp 1 1/8"
57	1	501773	Cooler
58	1	30674	Fitting - 3/4 NPT x 4-1/2 Nipple Galvanized
59	1	30788	Fitting - 3/4" FNPT x 3/4" JIC Swivel
60	8	10272	Nut - 5/16-18 Kep
61	1	20743	Fitting - 3/4" JIC x 3/4" MPT 90°
62	1	508216	VMM Enclosure Assy.
63	1	505014	Cooler Assembly
64	1	20672	Fitting - 1/2 MPT x 3/4 HB Str.
65	1	506317	Modified Bushing - DST-6
66	1	5019346	Pulse Pipe - DST-6
67	1	10128	Bolt - 3/8 X 1 HHCS
68	1	30660	Fitting - 2" Cross Galv.
69	6	10304	Lock Washer - 1/4
70	1	10673	2" King Nipple - Zinc
71	6	10110	Bolt - 1/4 x 1 HHCS
72	1	22289	2" NPT Cherne Plug
73	1	10209	Nut - 3/8 Hex
74	1	506879	Lanyard
75	1	10308	Lock Washer - 3/8
76	1	10637	Fitting - 2" Close Nipple Galv.
77	6	10201	Nut - 1/2 Hex

STAINLESS STEEL OPTION

ITEM	QTY	PART NO	DESCRIPTION
1	1	S507402	DST Box Subassembly
7	11	10337	Flat Washer - 3/8 SS
12	52	40133	Self Tap - 5/16-18 UNC x 3/4 HTC SS
17	6	10338	Flat Washer - 1/2 SS
18	6	10334	Lock Washer - 1/2 SS
19	6	20149	Bolt - 1/2-13 x 1 1/2 HHCS SS
39	3	10333	Lock Washer - 3/8 SS
40	3	10249	Nut - 3/8 Hex SS
44	1	S506347	Scavenge Bin SS
47	4	20141	Bolt - 1/4-20 x 3/4 HHCS SS
48	4	10247	Nut - 1/4-20 Hex SS
-	4	10331	Lock Washer - 1/4 SS
51	18	10336	Flat Washer 5/16 SS
53	8	10335	1/4 - Flat Washer SS
54	3	40126	Bolt - 3/8-16 x 1 1/2 HHCS SS
67	1	20146	Bolt -3/8 x 1 HHCS SS
77	6	10250	Nut - 1/2 Hex SS

NOTE: The stainless steel option bill of materials is not a complete list. The items in the stainless steel BOM replace the items in the standard bill of materials. These items are numbered subsequent.



MODEL DST-4/DST-6
DST BOX SUBASSEMBLY
(M02530) REV G
06-26-2021
3:08 pm
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DETAIL A
SCALE 1 : 4

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**TYMCO MODEL DST-4/DST-6
DST BOX SUBASSEMBLY
DWG-M02530**

ITEM	QTY	PART NO	DESCRIPTION
	1	508214	DST Box Subassembly
1	1	508210	Air Tank Assembly
2	1	507312	DST Box Weldment
3	4	12734	Filter Element - PTFE
4	2	12638	Yoke Assembly - DST
5	2	22388	Venturi
6	2	12623	Cover - DST Box Filter
7	1	505015	DST Box Popoff
8	1	507127	DST Pressure Tap - Short
9	1	20743	90° 3/4 NPT to 3/4 JIC
10	2	10896	Fitting - 1/8 MPT x 3/16 HB Str.
11	1	10751	Fitting - 1/4 JIC x 1/4 JIC 90° BKH
12	2	30852	Fitting - 1/8 NPT x 1/4 PLT Male
13	1	30879	90° Pipe Adapter
14	2	30854	Fitting
15	1	20735	12 FTX - S Adapter
16	2	10807	Fitting - 1/4 JIC - 1/4 MPT 90°
17	1	507120	DST Filter/Separator Assy.
18	1	5019644	Safety Latch - Precleaner
19	1	22345	Handle - DST Box
20	1	508348	Hose Assembly - 3/4 x 22, 10929
21	1	505489	Hose Assy. - 1/4 Press Tap x 51"
22	1	503894	Hose Assy. - 1/4 Water x 32"
23	2	5020139	1/4" Brake Line Tube 38 1/2
24	1	507134	3/4" Air Hose - 10"
25	1	507135	3/4" Air Hose - 19"
26	1	507118	Cleanout Door Assy.
27	1	507115	Access Door Weldment
28	1	507315	Flue Assy.
29	1	505069	Precleaner Door Assy.
30	2	11335	Hose Clamp - 7/8 - 1 3/4
31	3	11362	Clamp - 1 - 1/8" Heavy Duty Dipped
32	4	11318	Hose Clamp - 5/8 - 1 1/4
33	1	506857	Rubber Seal
34	2	5018361	UHMW Slide
35	1	5020116	Short UHMW Slide
36	1	10671	Fitting - 1" NPT King Nipple
37	1	5019783	Hose - 1" Water x 24"
38	1	506546	Square Flusher Assy. DST Box
39	1	507128	DST Pressure Tap - Long
40	2	22459	Louvered Plug - 2 1/2 DIA
41	1	5021487	Module Cover
42	1	21784	Prox Switch
43	2	10231	Lock Nut - 1/2 UNC
44	3	10360	Washer - Nylon .52 x 1 3/8
45	29	10104	Self Tap - 5/16-18 UNC x 3/4
46	5	30104	Bolt - 1/2-20 x 3/4 HWH Rollock
47	10	10129	Bolt - 3/8-16 UNC x 1 1/4
48	16	10308	Lock Washer - 3/8
49	4	5010878	J Bolt
50	4	10201	Nut - 1/2 UNC

ITEM	QTY	PART NO	DESCRIPTION
51	4	30133	Screw - 10-32 x 1/2
52	1	5019677	Bumper 10"
53	4	10337	Flat Washer 3/8 SS
54	2	20146	Bolt - 3/8-16 UNC x 1 SS
55	2	20240	Lock Nut - UNC 3/8 SS Nylon
56	2	10111	Bolt - 1/4-20 x 1 HHCS
57	2	10304	Lock Washer - 1/4
58	11	10305	Flat Washer - 5/16
59	7	10117	Bolt - 5/16-18 UNC
60	7	10306	Lock Washer - 5/16
61	6	20248	Nut - 3/8-16 Heavy Hex Jam
62	6	10209	Nut - 3/8 UNC
63	6	10307	Flat Washer - 3/8
64	2	40151	Self Tap - 5/16-18 UNC x 1
65	1	507144	Sound Foam Kit
66	2	S5020390	Mount Slide
67	5	S5020391	Chute SS
68	-	-	-
69	1	5019455	Cover Plate - DST Box
70	1 x 56"	10591	Gasket - Access Panel
71	1	508347	Hose Assembly - 1/2" x 8" Shop Air
72	1	503553	Pivot Valve 12VDC w/7 Screw Term
73	1	5020137	1/4" Brake Line Tube 10 1/2
74	1	30863	Fitting - 1/8 Street Tee
75	1	507094	4" Plug Assembly
76	1	13187	Fitting - 1/4 JIC - 1/8 NPT Bulkhead Str.
77	1	13188	Fitting - 3/4 JIC Bulkhead Str.
78	1	10229	Lock Nut - 5/16 UNC
79	1	S5021286	Shelf SS - Venturi Plug
80	2	13185	6" Expansion Plug
81	1	508355	Shop Air Fill Assy.
82	1	505058	Hose - 1/4 x 18
83	1	S5020392	Bumper Latch Mount SS - Chute
84	1	5020393	Bumper
85	2	22468	Catch SS
86	4	40175	Screw - #10-32 x 3/4 SS
87	4	20311	Flat Washer - #10 SS
88	4	20252	Nut - #210-32 Kep SS
89	3	10205	Nut - 5/16 UNC
90	2	507109	Strata Tab Assembly
91	2	5021486	Shim
92	2	10203	Nut - 1/4 UNC
93	1	10640	Fitting - 1-1/2" NPT Plug Galv.
Not Shown	1	507327	Harness - DST Box Interior

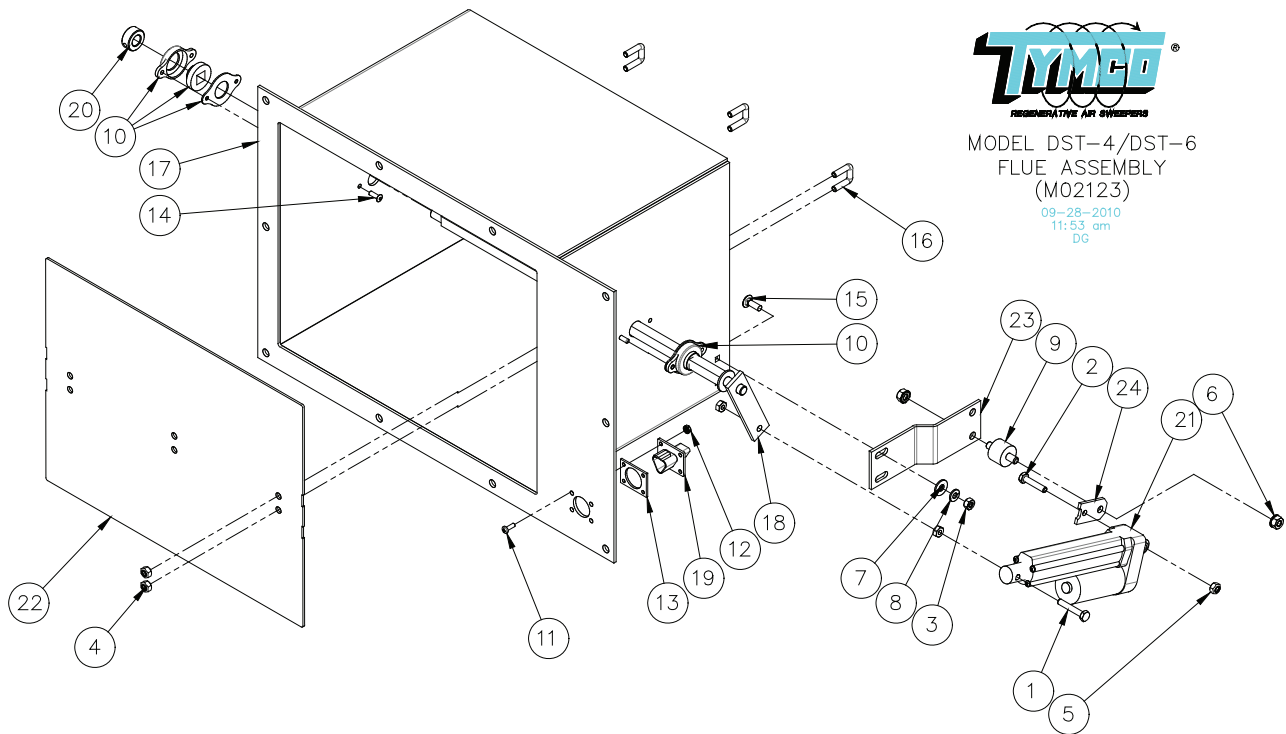
STAINLESS STEEL OPTION

ITEM	QTY	PART NO	DESCRIPTION
	1	S508214	DST Box Subassembly - Common Parts
2	1	S507312	DST Box Weldment
29	1	S505069	Precleaner Door Assy.
43	2	20239	Lock Nut - 1/2 UNC
45	29	40133	Self Tap - 5/16-18 UNC x 3/4
47	10	50123	Bolt - 3/8-16 UNC x 1 1/4

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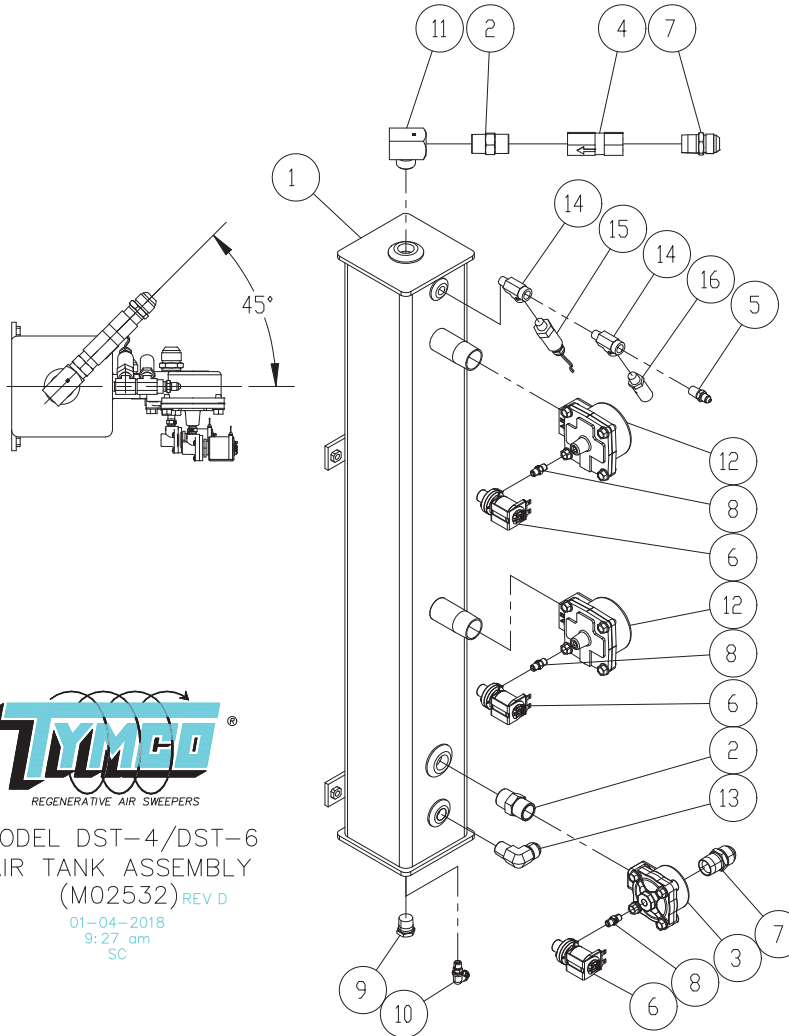
ITEM	QTY	PART NO	DESCRIPTION
48	16	10333	Lock Washer - 3/8
50	4	10250	Nut - 1/2 UNC
56	2	40108	Bolt - 1/4-20 x 1 HHCS
57	2	10331	Lock Washer - 1/4
58	11	10336	Flat Washer - 5/16
59	7	20143	Bolt - 5/16-18 UNC
60	7	10332	Lock Washer - 5/16
62	6	10249	Nut - 3/8 UNC
63	6	10337	Flat Washer - 3/8
78a	1	10248	Lock Nut - 5/16 UNC
78b	1	10306	Washer - 5/16 Lock Z/P
89	3	10248	Nut - 5/16 UNC
92	2	10247	Nut - 1/4 UNC
93	1	13803	Fitting - 1-1/2" NPT Plug Galv.

NOTE: The stainless steel option bill of materials is not a complete list. The items in the stainless steel BOM replace the items in the standard bill of materials. These items are numbered subsequent.



**TYMCO MODEL DST-4/DST-6
FLUE ASSEMBLY
DWG-M02123**

ITEM	QTY	PART NO	DESCRIPTION
	1	507315	Flue Assembly
1	1	10112	Bolt - 1/4-20 x 1 1/2 HHCS
2	1	10115	Bolt - 1/4-20 x 1 1/4 HHCS
3	2	10203	Nut - 1/4-20 UNC
4	6	10235	Lock Nut - 1/4-20 UNC
5	3	10246	Lock Nut - 1/4 UNC
6	2	10272	Nut - 5/16-18 Kept
7	2	10303	Flat Washer - 1/4
8	2	10304	Lock Washer - 1/4
9	1	20577	Sandwich Mount Isolator
10	2	11038	Flue Bearing Assembly
11	4	20170	#8-32 x 1/2 Pan Head Crew - Phillips
12	4	20220	Nut - #6-32 Kept
13	1	21779	Gasket
14	4	22389	Blind RVT
15	2	40117	Bolt - 1/4-20 x 3/4 C.H. G5 Z/P
16	3	50110	Sq. U-Bolt - 1/4-20 x 1/2 Dia.
17	1	507310	Flue Box Weldment
18	1	507313	Flue Shaft Weldment
19	1	507314	Harness - Flue Actuator
20	1	5011406	Set Collar - 1/2
21	1	5014315	Linear Actuator - 4"
22	1	5017803	Flue Plate - DST
23	1	5020335	Actuator Mount Bracket
24	1	8010882	Mounting Tab

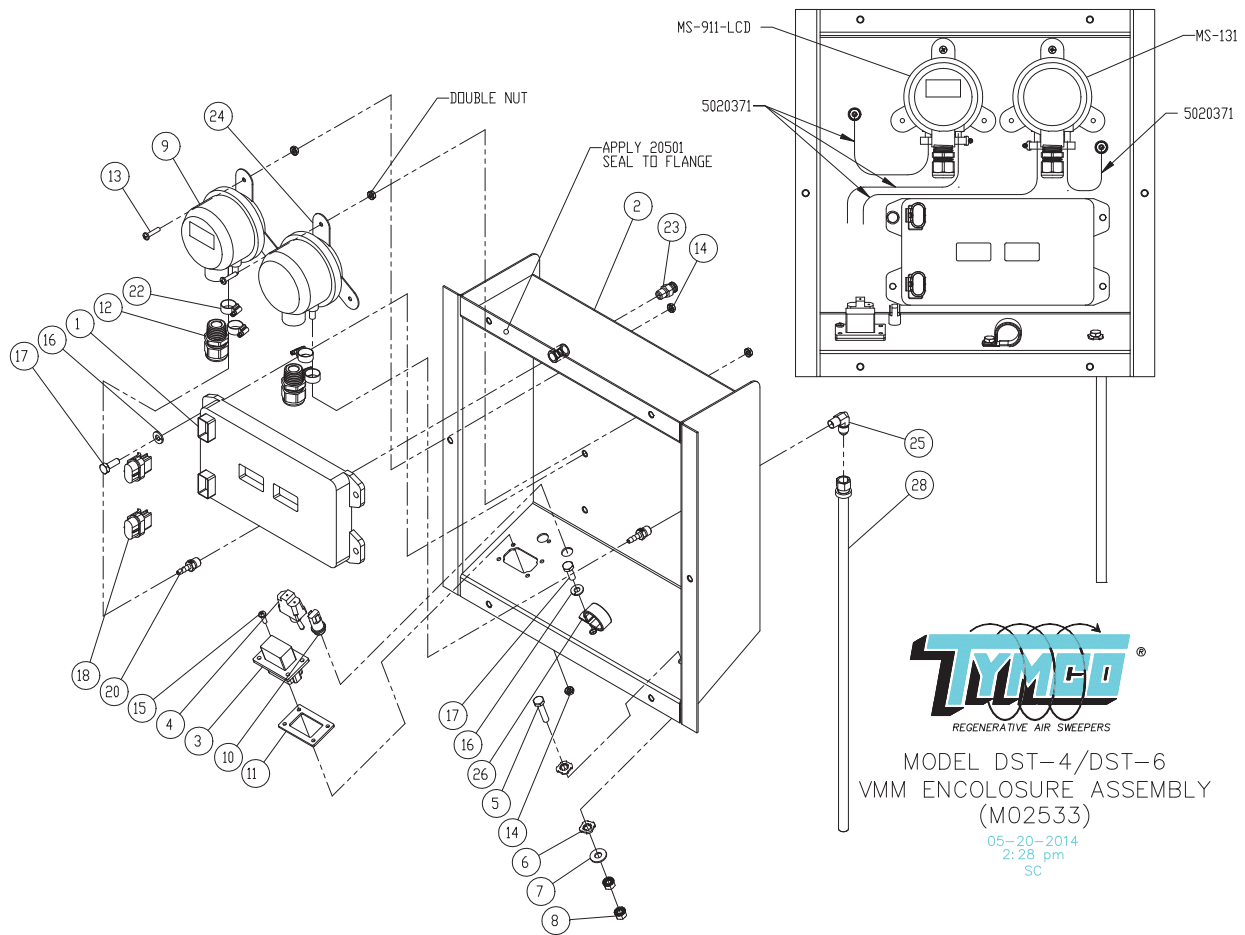


MODEL DST-4/DST-6
AIR TANK ASSEMBLY
(M02532) REV D

01-04-2018
9:27 am
SC

TYMCO MODEL DST-4/DST-6 AIR TANK ASSEMBLY DWG-M02532

ITEM	QTY	PART NO	DESCRIPTION
	1	508210	Air Tank Assembly
1	1	507329	Air Tank Weldment
2	2	20824	3/4" NPT Close Nipple - Brass
3	1	22556	Diaphragm Valve - 3/4"
4	1	12906	Brass Check Valve - 3/4 NPT
5	1	10737	Fitting - 1/4 MPT x 1/4 JIC Str.
6	3	503553	Pilot Valve 12VDC w/Screw Term.
7	2	20735	Fitting - 3/4 NPT x 3/4 JIC SVL
8	3	10707	1/8 Hex Nipple
9	1	20729	1/2 NPT Pipe Hex Plug
10	1	30854	1/8 NPT x 1/4 PTL SVL
11	1	30879	90° Pipe Adapter
12	2	22547	Diaphragm Air Valve
13	1	10765	Fitting - 1/2" NPT - 5/8" JIC 90°
14	1	20730	Fitting - 1/4 NPT Run Tee
15	1	13118	Pressure Transmitter
16	1	12624	Pop Off Safety Valve - 150 PSI



**TYMCO MODEL DST-4/DST-6
VMM ENCLOSEURE ASSEMBLY
DWG-M02533**

ITEM	QTY	PART NO	DESCRIPTION
	1	508216	VMM Enclosure Assembly
1	1	21601	VMM Without Program
2	1	508209	VMM Enclosure
3	1	508195	Harness - VMM J1 DST V5
4	1	12108	Toggle Switch - SPST Sealed
5	1	10115	Bolt - 1/4-20 x 1 1/4 HHCS
6	2	10357	Ground Washer - 1/4
7	1	10303	Flat Washer - 1/4
8	2	10274	Nut - 1/4-20 UNC Kept
9	1	507318	Magnesense Pressure Trans.
10	1	11742	Indicator Light - Green
11	1	21781	Gasket
12	2	21766	Liquid Tight Cord Grip
13	4	20171	#8-32 x 3/4 Pan Head Screw Phillips
14	10	10260	Nut - #8-32 Kept
15	7	20170	#8-32 x 1/2 Pan Head Screw Phillips
16	2	10304	Lock Washer - 1/4
17	2	10110	Bolt - 1/4-20 x 3/4 HHCS
18	1	507328	Harness - VMM Power
19	-	-	-
20	2	10896	Fitting - 1/8 MPT x 3/16 HB Str.

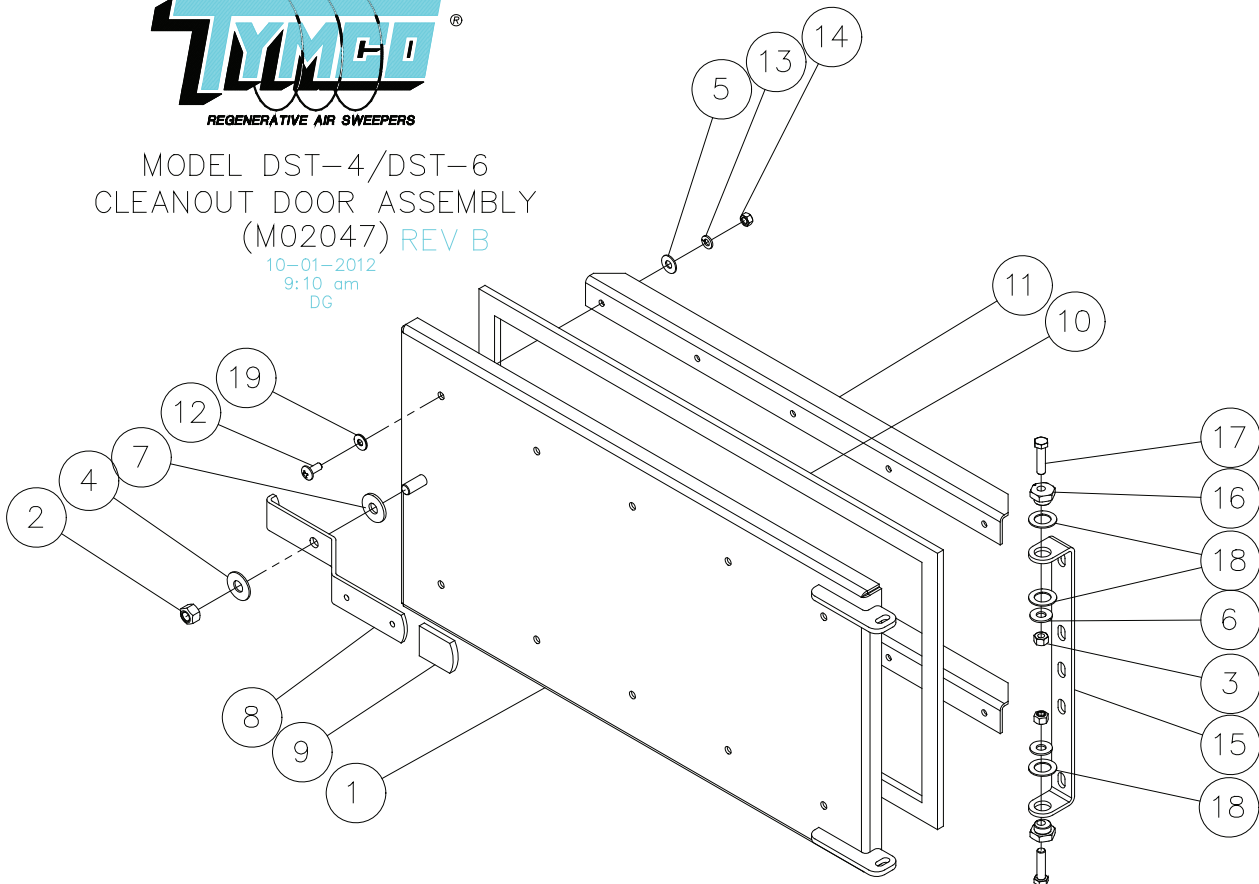
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ITEM	QTY	PART NO	DESCRIPTION
21	-	-	-
22	4	11333	Hose Clamp - .22-.63
23	1	30852	Fitting - 1/8 NPT x 1/4 PLT Male
24	1	13119	10" Magnesense Trans.
25	1	10807	Fitting - 1/4 JIC-1/8 MPT 90°
26	1	11338	Clamp - Dipped - 1.00
27	-	-	-
28	1	505058	Hose - 1/4 x 18
29	-	-	-
Not Shown	2	5020371	Hose - 3/16 x 12" 10923
Not Shown	5	20501	Seal - 3/16 x 1"
Not Shown	1	508196	Harness - VMM J2 DST V5
Not Shown	1	507375	Harness - VMM Power



MODEL DST-4/DST-6
CLEANOUT DOOR ASSEMBLY
(M02047) REV B

10-01-2012
9:10 am
DG



**TYMCO MODEL DST-4/DST-6
DST CLEANOUT DOOR ASSEMBLY PARTS LIST
DWG-M02047**

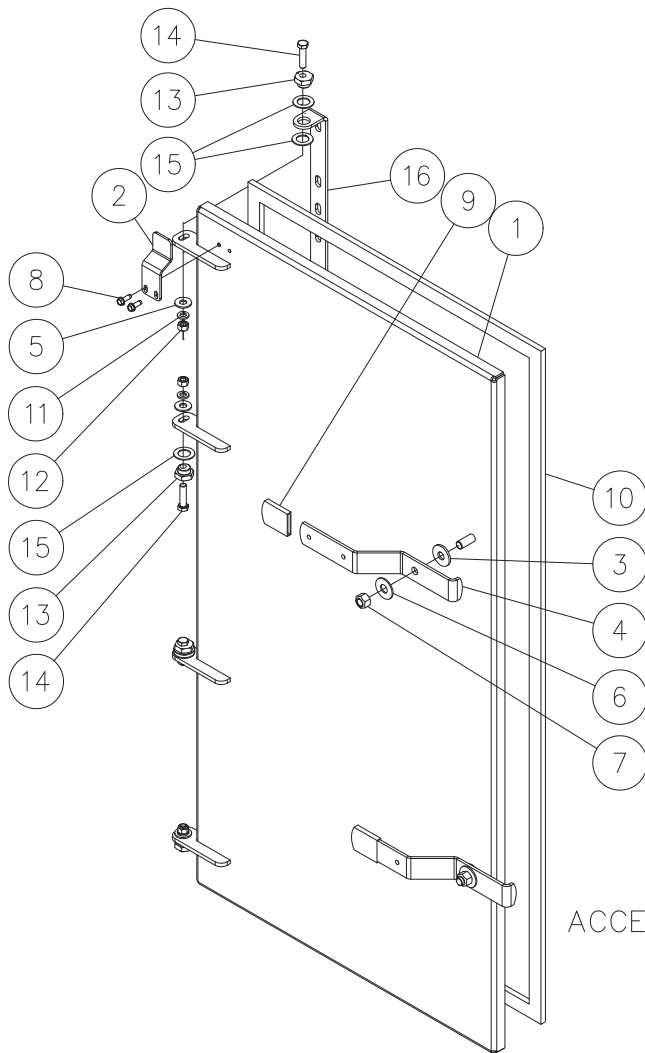
ITEM	QTY	PART NO	DESCRIPTION
	1	507118	Cleanout Door Assembly
1	1	506938	Cleanout Door Weldment
2	1	10231	Lock Nut - 1/2 UNC
3	2	10225	Lock Nut - 3/8 UNC
4	1	10311	Flat Washer - 1/2
5	10	10305	Flat Washer - 5/16
6	2	10307	Flat Washer - 3/8
7	1	10360	Washer - Nylon 33/64 x 1 3/8
8	1	5010617	Latch
9	1	12192	Vinyl Cover
10	1	506370	Cleanout Door Seal
11	2	5017807	Stiffener
12	7	30186	Truss Screw - #10 SS
13	10	10306	Lock Washer - 5/16
14	10	10205	Nut - 5/16 UNC
15	1	5020111	Hinge Base
16	2	5010616	CAM
17	2	10130	Bolt - 3/8-16 UNC x 1 1/2
18	4	10361	Washer 3/4 ID x 1 1/4 OD
19	10	10302	5/16 x 3/4 Bonded Seal Washer

STAINLESS STEEL OPTION

ITEM	QTY	PART NO	DESCRIPTION
1	1	S506938	Cleanout Door Weldment
2	1	20239	Lock Nut - 1/2 UNC
3	2	20240	Lock Nut - 3/8 UNC
4	1	10338	Flat Washer - 1/2
5	10	10336	Flat Washer - 5/16
6	2	10337	Flat Washer - 3/8
11	2	S5017807	Stiffener
12	7	40160	Truss Screw - #10 SS
13	10	10332	Lock Washer - 5/16
14	10	10248	Nut - 5/16 UNC
15	1	S5010111	Hinge Base
17	2	40126	Bolt - 3/8-16 UNC x 1 1/2

NOTE: The stainless steel option bill of materials is not a complete list. The items in the stainless steel BOM replace the items in the standard bill of materials. These items are numbered subsequent.

R

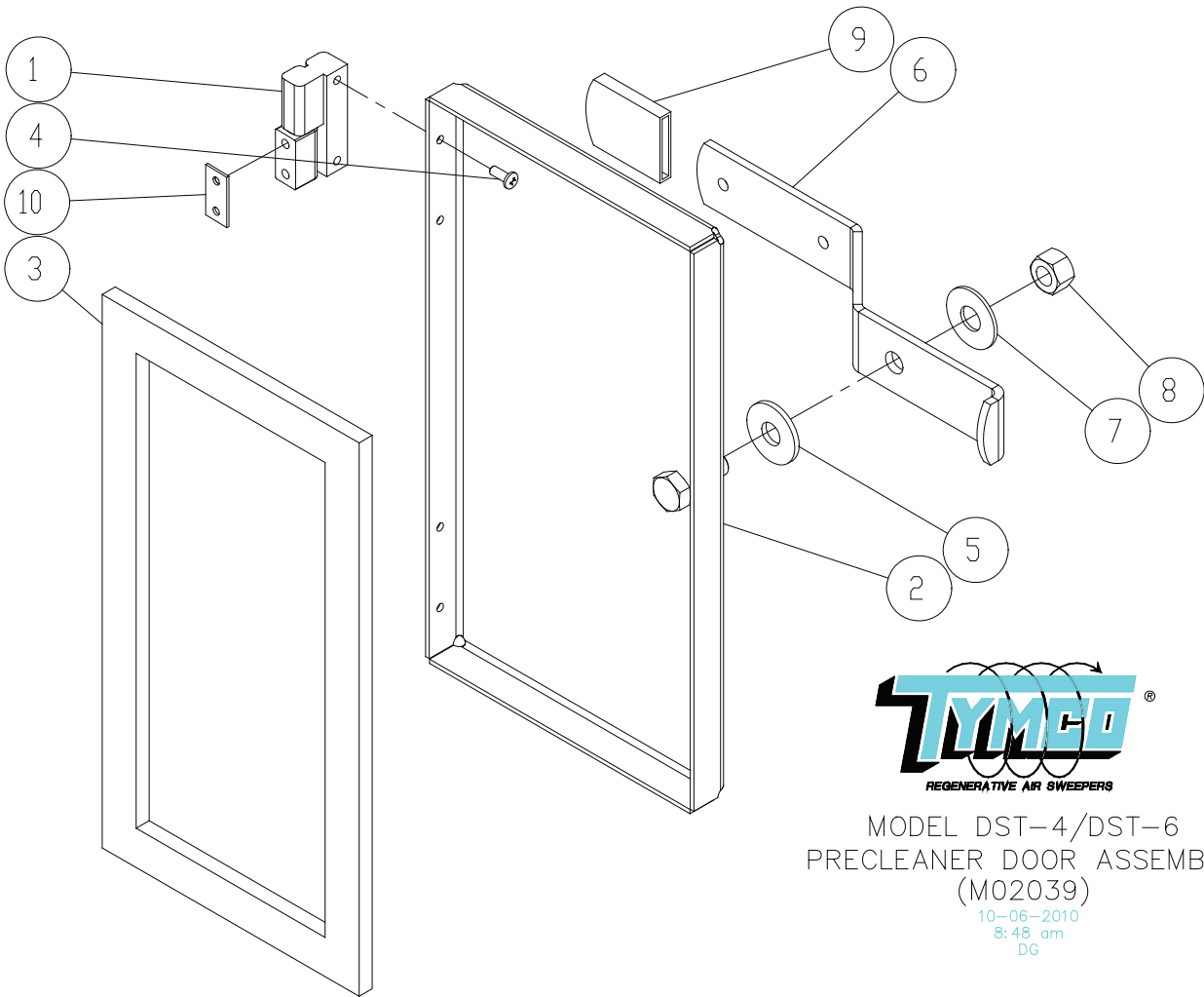


MODEL DST-4/DST-6
ACCESS DOOR WELDMENT - DST-4 BOX
(M02046)

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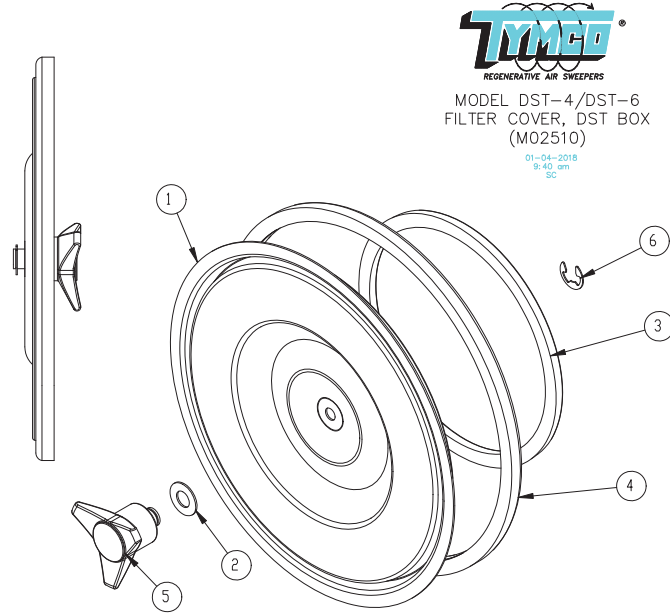
**TYMCO MODEL DST-4/DST-6
DST BOX ACCESS DOOR WELDMENT ASSEMBLY PARTS LIST
DWG-M02046**

ITEM	QTY	PART NO	DESCRIPTION
	1	507115	Access Door Weldment Assembly
1	1	507090	Access Door Weldment
2	1	5017482	Striker Plate - DST Safety Switch
3	2	10360	Washer - Nylon 33/64 x 1 3/8
4	2	5010617	Latch
5	4	10307	Flat Washer - 3/8
6	2	10311	Flat Washer - 1/2
7	2	10231	Lock Nut - 1/2 UNC
8	2	30104	Bolt - 1/4-20 x 3/4 HWH Rollock
9	2	12192	Vinyl Cover
10	1	506371	Access Door Seal
11	4	10308	Lock Washer 3/8
12	4	10209	Nut - 3/8 UNC
13	4	5010616	CAM
14	4	10130	Bolt - 3/8-16 UNC x 1 1/2
15	6	10361	Washer 3/4 ID x 1 1/4 OD
16	2	5020111	Hinge Base - Access Door



**TYMCO MODEL DST-4/DST-6
DST BOX ACCESS DOOR WELDMENT ASSEMBLY PARTS LIST
DWG-M02039**

ITEM	QTY	PART NO	DESCRIPTION
1	1	505069	Precleaner Door Assembly
2	2	22105	"B" Type Offset Hinge Assembly
3	1	506895	Stratapanel Door Weldment - DST
4	1	506368	Strata Door Seal
5	2	30133	Screw - 10-32 x 1/2
6	1	10360	Washer - Nylon 33/64 1 3/8
7	1	5010617	Latch
8	1	10311	Flat Washer - 1/2
9	1	10231	Lock Nut - 1/2 UNC
10	1	10192	Vinyl Cover
10	2	5020164	Shim - Precleaner Door Hinge



**TYMCO MODEL DST-4/DST-6
 DST BOX FILTER COVER ASSEMBLY PARTS LIST
 DWG-M02510**

ITEM	QTY	PART NO	DESCRIPTION
	2	12623	DST Box Filter Cover Assembly
1	1	-	Stamp - Filter Cover (DST Box)
2	1	13307	Bushing/Seal Washer
3	1	20545	Silicon Seal - Donaldson DST Filter
4	1	20546	Seal - DST Cover Opening
5	1	22282	Knob - DST Filter Cover
6	1	22404	7/8" E-Clip

BASIC OPERATION:

The operator should already be familiar with the safety precautions and operation of a standard TYMCO Model DST-4 street sweeper:

1. To begin sweeping in dustless mode, use the auxiliary hydraulic system to lower the pickup head and pull forward to seat the pickup head seal curtains.
2. Start the auxiliary engine and set RPM to 2100, turn on the DST Mode Switch and observe the pressure gauge at the sweeper control panel.
3. Turn on the Purge Switch next to the DST Mode switch and begin sweeping. A loud popping sound every 15-17 seconds indicates the purge system is working.

NOTE: Pressure should rebuild to 95-100 PSI between purge valve discharges. Discharge interval is 15 to 17 seconds.

4. If conditions allow, turn on the hopper water for longer operational life of the filters.
5. The sweeper is now ready for normal street sweeping operation.
6. The operator should observe the DST Filter Restriction Gauge to check filter restriction. The sweeper should perform virtually dustless up to 8" WC (water column) depending upon the weight of the debris load.
7. Should the sweeper filter restriction gauge reach 8-10" WC and dust is being created, stop forward travel and allow the purge system to pulse the filters for a few minutes until the restriction gauge registers in the 3-5" WC range.

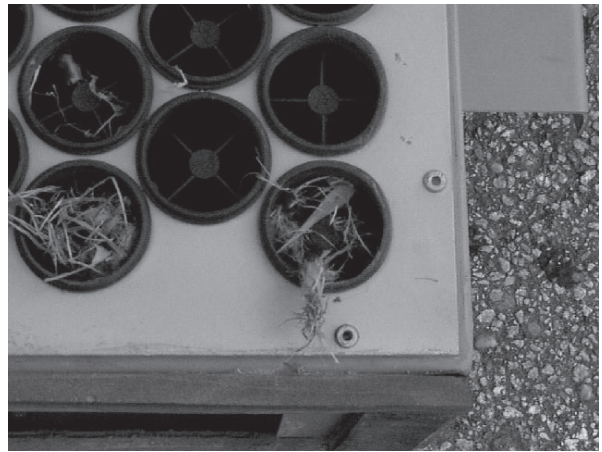


R

ROUTINE MAINTENANCE

Follow standard Model 435 guidelines for after shift maintenance of the main sweeper assembly. End of shift requirements of the dustless filtration box are noted below:

1. Remove precleaner assembly and clean, make sure to remove any grass or paper clippings caught inside the separator tubes. (Illustration M01308)
2. Inspect that scavenge bin is clear and that the scavenge hose is free flowing. Reinstall the precleaner.
3. Open the large access door and drain the filter/water separator (top of box) by pushing on the drain cock until empty (Illustration M02143).TYMCO MODEL DST-4



**M01308
REMOVE TRASH FROM
PRECLEANER TUBE
OPENINGS**

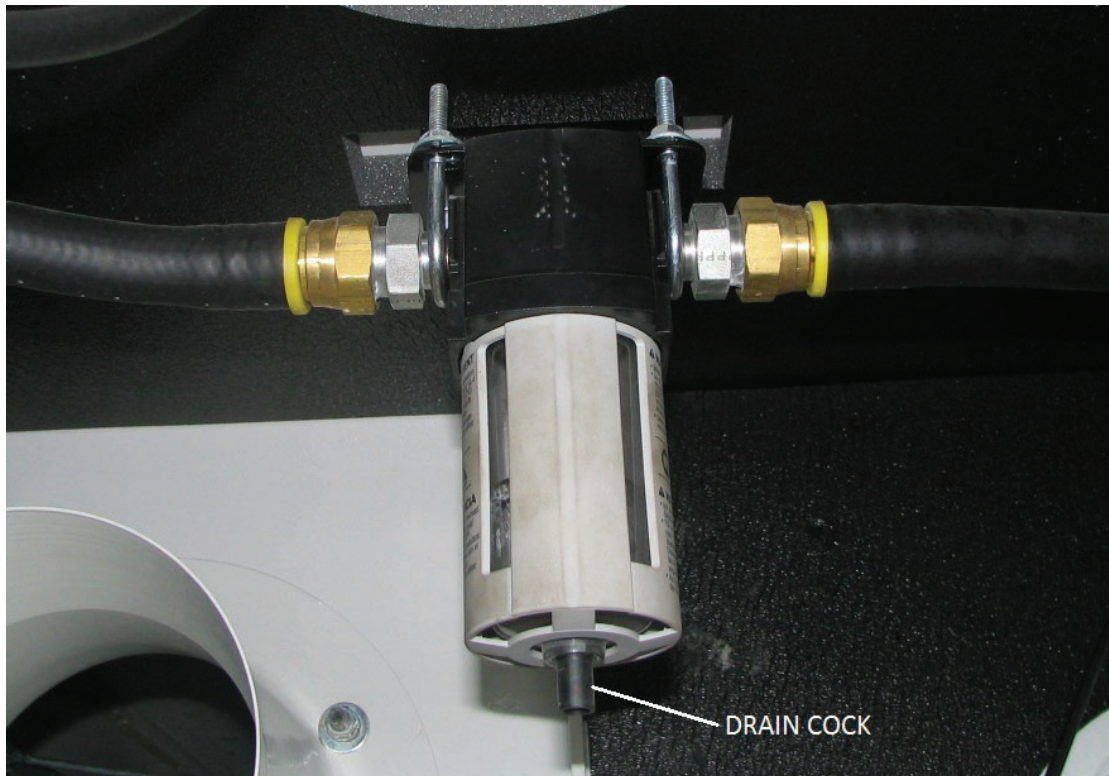
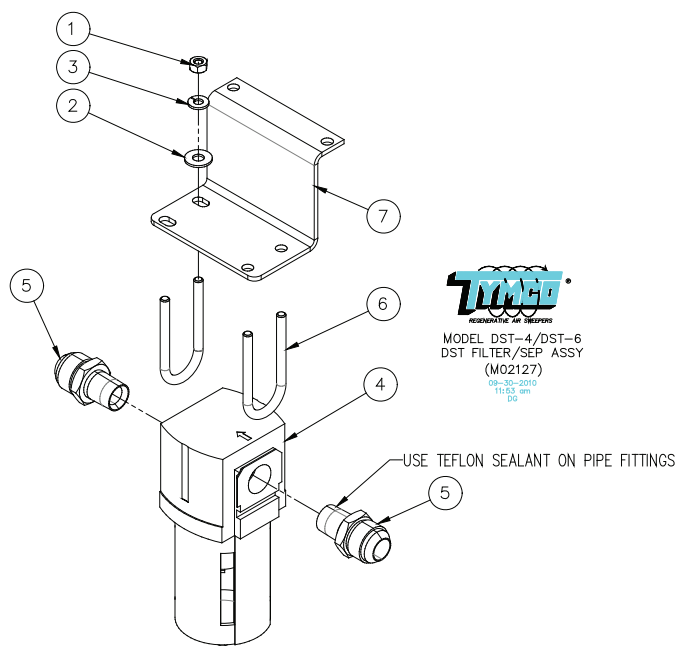


ILLUSTRATION M02143

NOTE: Bowl will normally be full of water, drain until empty.

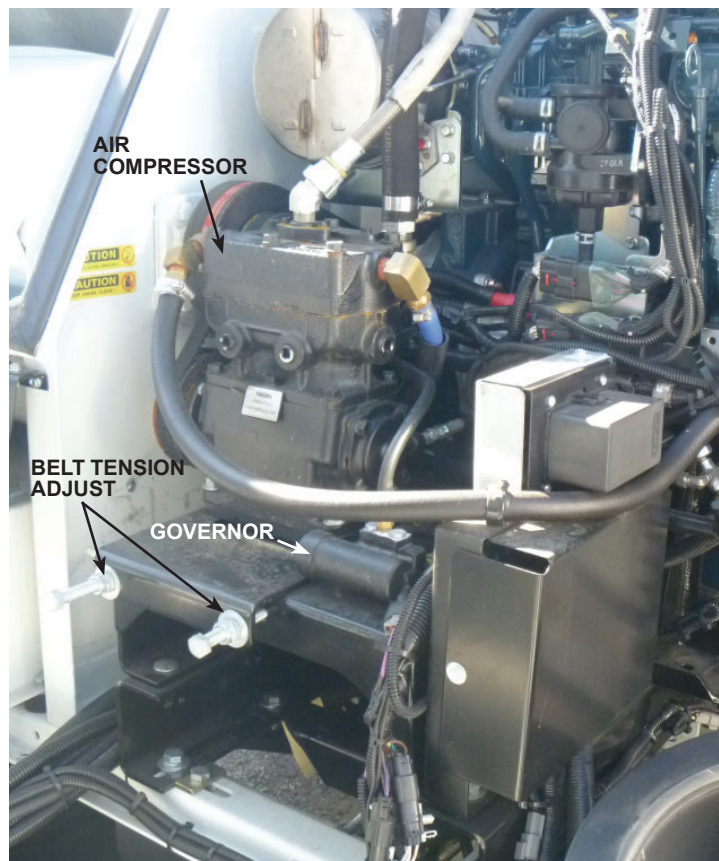
IMPORTANT: It is not necessary to daily wash out the filter dust hopper. Just remove the loose dust on the hopper floor. Washing the filter hopper requires removing the four large filters from the hopper to prevent mudding them over by wash water over spray. Remove and wash the filters only when they cannot be purged clean down to 3-5" WC by the dustless purge system.



**TYMCO MODEL DST-4/DST-6
DST FILTER/SEPARATOR ASSEMBLY PARTS LIST
DWG-M02127**

ITEM	QTY	PART NO	DESCRIPTION
	1	507120	DST Filter/Separator Assembly
1	4	10203	Nut - 1/4 UNC
2	4	10303	Flat Washer - 1/4
3	4	10304	Lock Washer - 1/4
4	1	22472	Compressed Air Filter
-	1	22473	Replacement Filter Element
5	2	30742	Fitting - 1/2 MPT x 3/4 JIC Str.
6	2	50129	U-Clamp - 1/4-20 x 1 x 2 3/4
7	1	5020131	Mount - l/R Filter/Separator Assy.

R



COMPRESSOR SERVICE

The compressed air system of the TYMCO DST-4 sweeping system is vital for the proper sustained performance of the dustless effect. Without the compressed air system, the four large filters used to clean all exhaust air would quickly become blinded over blocking the exhaust air flow and causing the sweeper to produce dust.



WARNING! Always bleed down compressed air system to 0 PSI before servicing components or severe injury will result.

WARNING! Before servicing, stop auxiliary engine and remove ignition key or disconnect negative battery cable.

A heavy duty air compressor is used to provide adequate volume and pressure for the filter air purge system used in the dustless conversion sweeper. This high quality air compressor requires very little service, but must be included in user's routine maintenance schedule. The TYMCO DST-4 unit uses a engine lubricated, water cooled compressor.

TYMCO does not stock service components for the compressor, contact the nearest manufacturer service outlet for assistance and parts.



WARNING! Check the compressor only when cool. Compressor external temperature can be in excess of 300 degrees Fahrenheit which can cause serious burn.

SWEEPER TOOLS

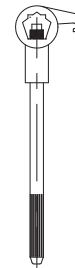
The TYMCO Sweeper Tools consists of a variety of tools designed to provide ease of maintenance and/or testing tasks. Although basic mechanic tools will suffice in most cases, it is felt these tools will assist in thorough, accurate maintenance and testing in the day-to-day operation and upkeep of your TYMCO Sweeper. They have been developed over a number of years through experience and have proven to be cost effective in reduced downtime and labor expenses. The following Figure Drawings and Instructions are provided for your convenience.



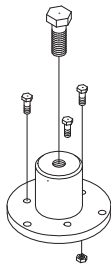
501110
HYD. PRESS. GAUGE



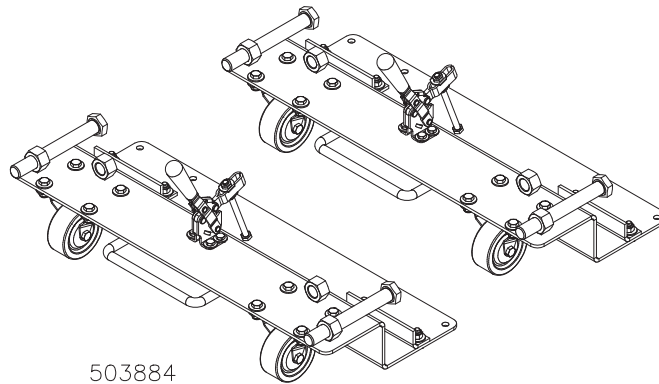
501111
WATER PRESS. GAUGE



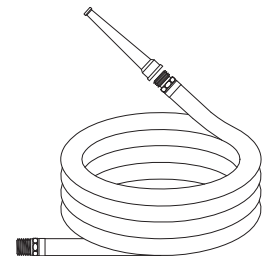
5011829
WATER HYDRANT WRENCH



501785
PULLER-G.B. HUB



503884
DOLLY-P.U. HEAD(2)



501784
HOSE WASH DOWN

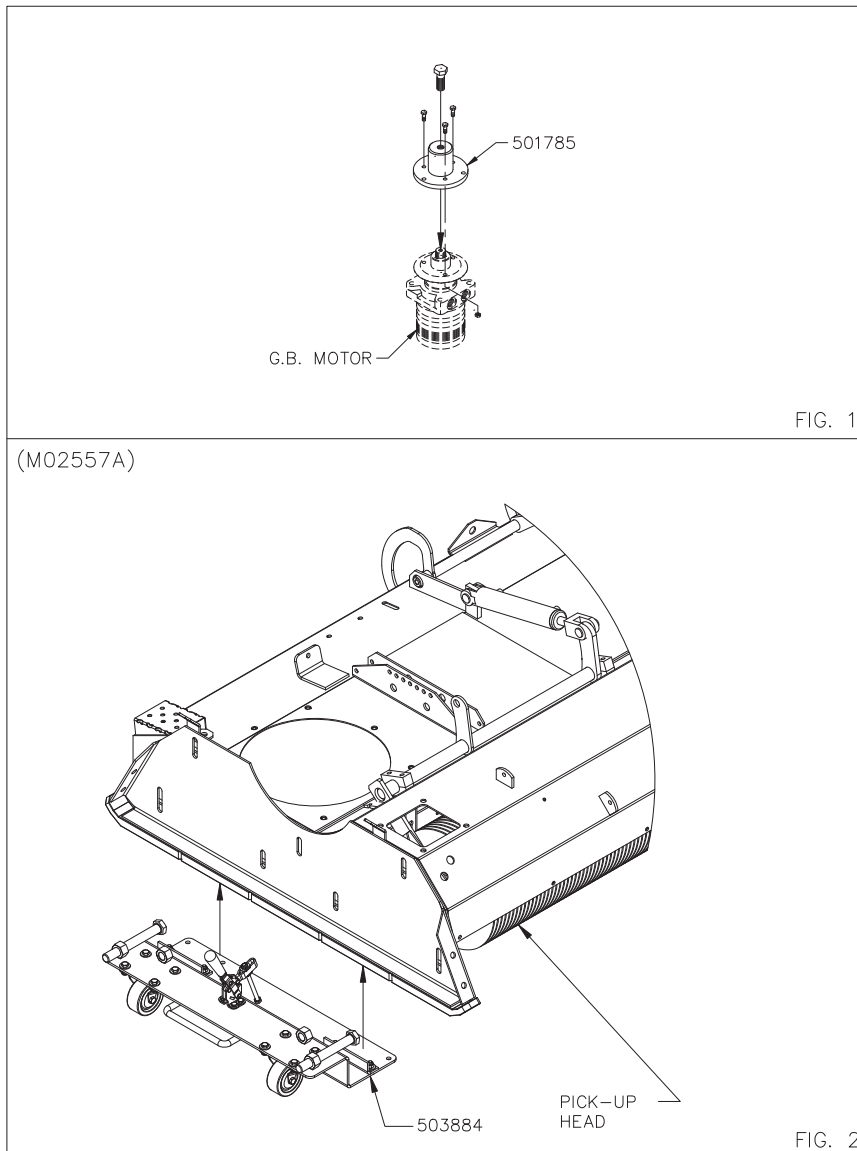


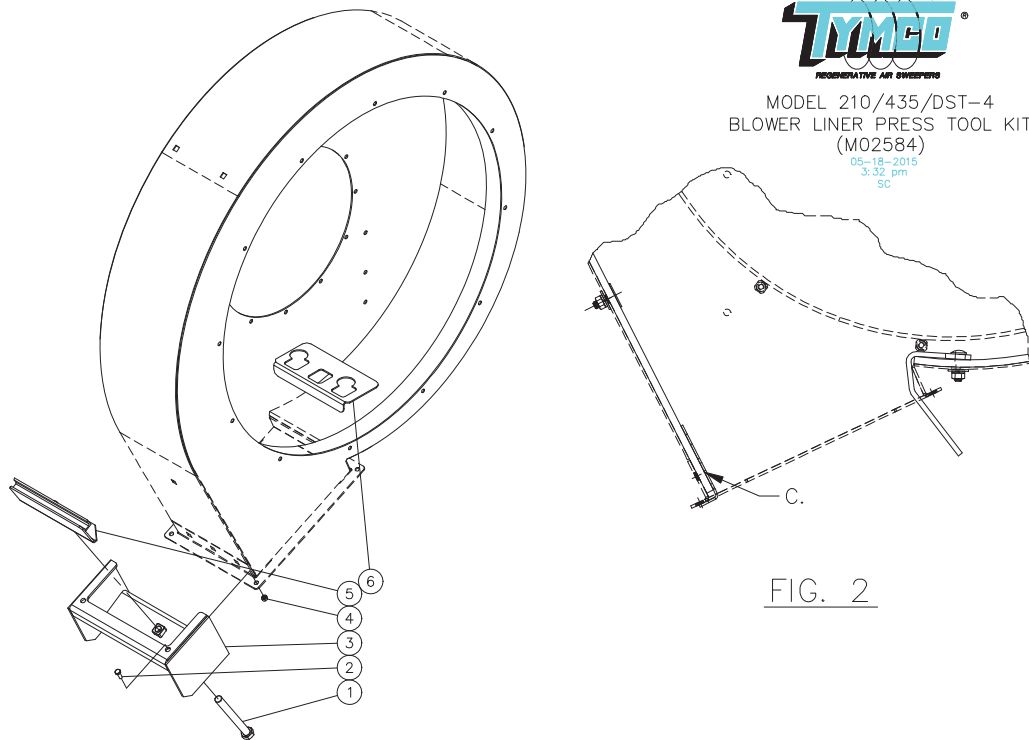
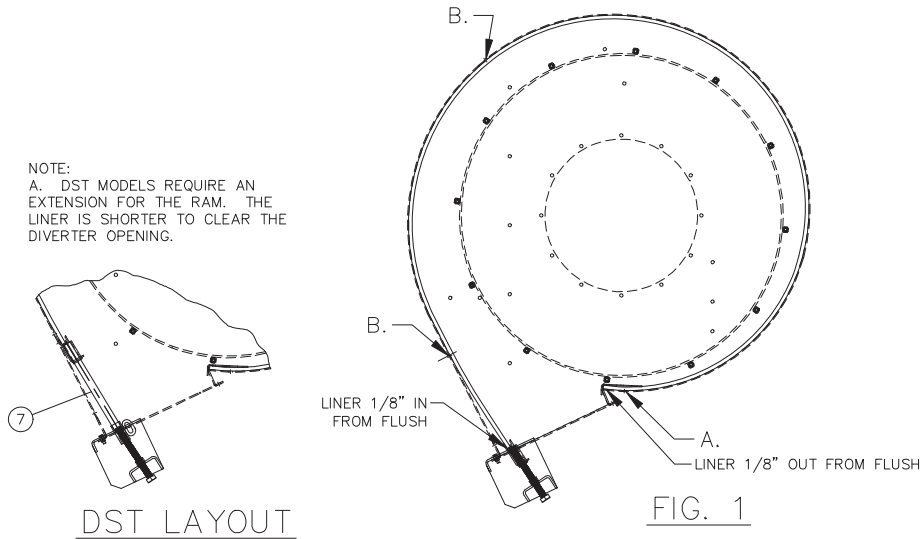
FIG 1. - Removing gutter broom motor hub (All TYMCO Models)

1. After removing the gutter broom torque motor/drive hub assembly, set the gutter broom hub puller (501785) on top of the gutter broom motor drive hub.
2. Line up the holes in the hub puller with the holes in the drive hub.
3. Install all 3 bolts finger tight.
4. Tighten the large bolt on the puller until the drive hub comes loose from the shaft.

FIG 2. - Installing pick-up head dolly (All TYMCO Models)

1. To install the pick-up head dolly, lift dolly so that the bottom of the skid plate is resting in the dolly flange.
2. While holding the dolly in place, secure to pick-up head with the attached clamp. Some adjustment may be necessary for proper tightness.

NOTE:
A. DST MODELS REQUIRE AN EXTENSION FOR THE RAM. THE LINER IS SHORTER TO CLEAR THE DIVERTER OPENING.



**MODEL 210/210h/435/DST-4
BLOWER PRESS TOOL KIT
DWG-M02584**

ITEM	QTY	PART NO	DESCRIPTION
	1	508392	Blower Press Tool Kit
1	1	40188	Bolt - 5/8-11 x 6 Tap HHCS
2	2	10110	Bolt - 1/4-20 x 3/4 HHCS
3	1	508394	Base Weldment
4	2	10203	Nut - 1/4-20 Hex
5	1	508393	Ram Weldment
6	1	5021356	Backup Drill Plate
7	1	508456	DST Ram Extension (DST-4 Only)
Not Shown	1	12654	Spring Snap Link - 7/16"

BLOWER LINER INSTALLATION PROCEDURE

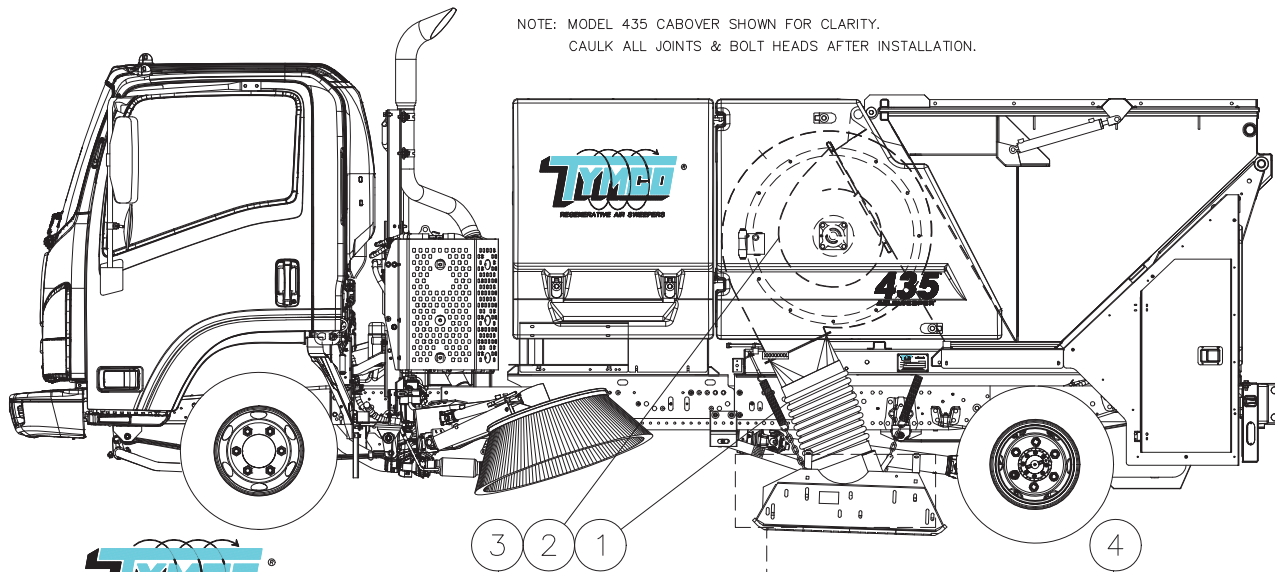
1. Slide liner into blower housing with “TYMCO wear side” decal visible and positioned to be at “C” side of the housing. Slide until approximately 1/8” of liner is sticking out from flush at “A”. Make sure liner is against the separator side of housing wall. Install back up drill plate (item 6) at “A” using clamps to secure in place. Using a 7/16” drill bit, backdrill the liner through the 2 square holes for the blower lip. Install blower lip and hardware.
2. Attach base weldment (item 3) and insert liner into the ram (item 5). Apply tension by tightening the bolt (item 1) until liner is approximately 1/8” in from flush. Tap liner using a rubber mallet to keep liner tight against the housing scroll wall. Backdrill the liner through the 3 square holes at “B” and install hardware. Remove liner press.
3. Install back up plate at “C” using clamps to secure in place. Backdrill liner through the 3 square holes. Remove plate and install hardware.
4. Liner is now ready for caulking.

OPTIONS SECTION

MODEL DST-4 TABLE OF CONTENTS

OPTION NO.	DESCRIPTION
435OPT1	Abrasion Protection Package (Standard Equipment)
435OPT3	Auto Sweep Interrupt
D4OPT4	Shop Air Purge
435OPT11	Hopper Up Alarm
435OPT13	Hopper Deluge (Standard Equipment)
D4OPT16	Hopper Load Indicator (Standard Equipment)
D4OPT17	Low Emissions Package
D4OPT18	Drop Down Gutter Broom
D4OPT19	Front Bumper Spray Bar
D4OPT20	Hydraulic Level/Temperature Shutdown System
435OPT22	Removable Suction Tube
D4OPT23	Variable Speed Gutter Broom (Standard Equipment)
2OPT24	CurbView Camera/Monitor System
435OPT25	Skid Bumper Extension
D4OPT27	High Output Water System (Standard Equipment)
D4OPT28	Pick-Up Head Curtain Lifter
D4OPT31	LED Bar Light
435OPT32	Traffic Directing Light
435OPT34	Double Duo Skid Set
435OPT36	Auxiliary Engine Block Heater
435OPT42	Auxiliary Engine Air Restriction Indicator (Standard Equipment)
435OPT43	Hydraulic Shutoff Valve
D4OPT44	Additional Water Nozzles w/Separate Switches
435OPT45	Automated Water System
435OPT46	LED Front Bumper Warning Lights
435OPT47	Slow Moving Vehicle Sign

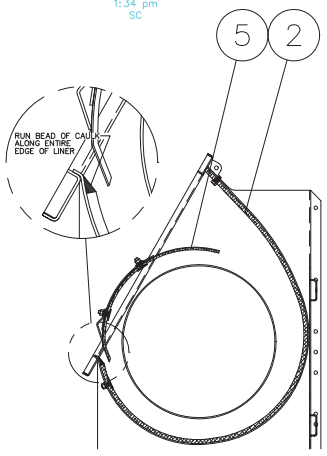
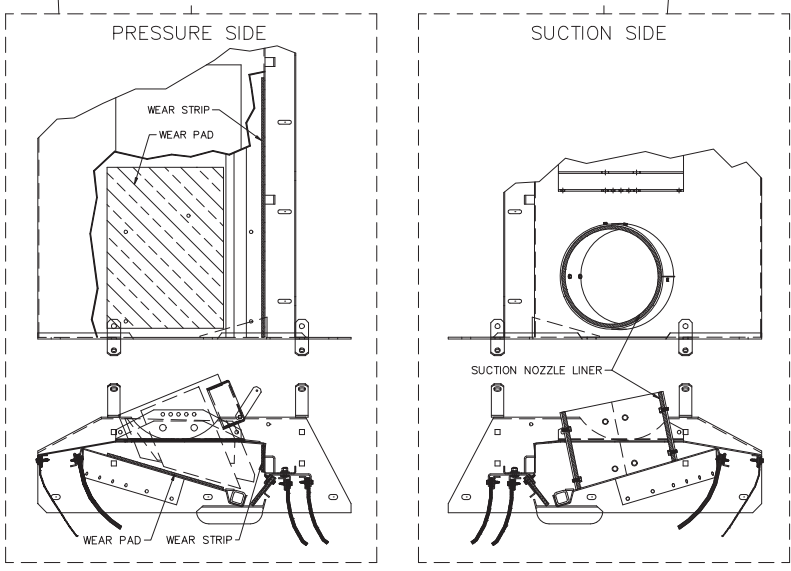
OPT 1



NOTE: MODEL 435 CABOVER SHOWN FOR CLARITY.
CAULK ALL JOINTS & BOLT HEADS AFTER INSTALLATION.



MODEL 435/DST-4
ABRASION PROTECTION PACKAGE
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TYMCO MODEL 435/DST-4 ABRASION PROTECTION PACKAGE PARTS LIST DWG-M01400

ITEM	QTY	PART NO	DESCRIPTION
	1	505350	Abrasion Protection Package
1	2	5017410	Heavy Duty Hose - 11-3/4" I.D.
2	1	5017332	Separator Liner
3	1	503268	Pressure Chamber Wear Kit
4	1	503272	Suction Nozzle Liner Kit
5	1	5017330	Inlet Scroll - Rubber Coated
Not Shown	5	10123	Bolt - 5/16-18 x 1 Elevator
Not Shown	2	40115	Bolt - 5/16-18 x 3/4 Elevator
Not Shown	2	10104	Bolt - 5/16-18 x 3/4 Taptite
Not Shown	2	12771	PPG #U-418 Caulk
Not Shown	2	20206	Nut - 5/16-18 Hex Jam
Not Shown	5	10205	Nut - 5/16-18 Hex
Not Shown	2	10305	Flat Washer - 5/16"
Not Shown	7	10306	Lock Washer - 5/16"

AUTO SWEEP INTERRUPT (ASI) MODEL 435/DST-4 SND SERIES

FUNCTION:

The Auto Sweep Interrupt option acts to improve operator efficiency and protect sweeper components by automatically interrupting sweeping functions when any one of several conditions is met:

1. The sweeper is placed in reverse.
2. Sweeping with excessive vehicle speed.
3. The operator requests to interrupt sweeping.

When triggered the Auto Sweep Interrupt (ASI) system will perform the following functions to interrupt sweeping.

1. The auxiliary engine is idled and the gutter broom(s) are stopped.
2. The Water System is turned OFF.
3. The Left Gutter Broom is RAISED (if previously on).
4. The Right Gutter Broom is RAISED (if previously on).
5. The Pick-Up Head is RAISED and the BAH broom (if applicable) is stopped.

To reset the sweeper and resume sweeping, the transmission must not be in reverse and the ASI RESET switch must be pressed. All systems will return to their previous mode. The pick-up head will lower, the BAH broom will rotate if previously ON, the water system will resume if previously ON, and the gutter brooms will lower if previously ON. The configurable ASI RPM Return feature will automatically resume to the previous auxiliary engine speed setting if desired. If ASI RPM Return feature is disabled, the operator will manually raise the auxiliary engine speed and resume sweeping.

ASI will be activated when any of the following parameters are met:

Placing The Transmission Into Reverse: When ASI is configured to do so (default setting) it will interrupt all sweeping functions when the transmission is placed into reverse. The pick-up head is designed to operate (or be pulled) primarily in the forward sweeping direction. The reverse operational pick-up head system allows backing of the sweeper with the head down, but best practice is to raise the pick-up head when backing up. Before backing the sweeper, the operator should idle the engine and raise the pick-up head and both gutter brooms. The ASI system will accomplish this sequence of operations in an elapsed time of approximately 10 seconds (7 seconds if only using one gutter broom).

Overspeed Interrupt: The ASI system includes an Overspeed Interrupt feature which will automatically interrupt sweeping if the operator sweeps with excessive vehicle speed. If the operator exceeds the preset ASI Warning Speed while sweeping, the system will sound an audible alarm and instruct the operator to slow down. If the operator exceeds the configurable ASI Interrupt Speed, the ASI system will interrupt sweeping. To reactivate sweeping, slow down below the interrupt speed, and press the ASI RESET switch. The warning speed and the interrupt speed are configurable. The default setting of the Overspeed Interrupt feature is "Disabled". To enable the feature, see Configurable Features below. When the ASI Overspeed Interrupt feature is enabled, the standard Overspeed Warning System will automatically be disabled. An event log will be recorded in the Overspeed log for each overspeed incident.

Pressing The "ASI RESET" Switch: The ASI RESET switch can be used to trigger ASI to interrupt sweeping and raise all components without putting the sweeper into reverse. The same switch can be used to set all sweeper components to their previous

OPT 3

settings; which enables the ASI RESET switch to function as a one button Start/ Stop sweeping action.

SYSTEM COMPONENTS

The Auto Sweep Interrupt system consists of the Reset switch, the HMI display, and the BlueLogic® module.

1. The RESET switch is momentary and is used to trigger the ASI to reset the sweeper (lower all components) after ASI has been activated. The same switch also allows the operator to trigger the ASI to interrupt the sweeper (raise all components) without shifting into reverse.
2. The HMI display is used to communicate the status of the ASI system to the operator. It is also used to configure the features of the system.
3. The BlueLogic module is an integral part of the sweeper control system. This control module monitors the Reset switch, vehicle speed, and transmission gear and is programmed to control the sweeper functions accordingly.

ASI SAFETY FEATURE

If the RESET switch was used to interrupt sweeping (this leaves the gutter broom switch(s) in the ON position) and the auxiliary engine was turned off, a safety feature is provided to prevent the gutter brooms from turning ON when restarting the auxiliary engine. Upon turning on the ignition switch, the BlueLogic system will check to see if the gutter broom switches are in the ON position. If one of the switches is in the ON position, the ASI system will activate and the ready light will illuminate. Pressing the reset switch will lower the PUH and reactivate the broom that is on. The engine RPM will remain at idle. The operator should manually raise the engine RPM to the desired sweeping speed.

DESCRIPTION OF OPERATION

The ASI mode must be set to “AUTO” for ASI to function. See Configurable Features section below for information on changing the ASI mode.

WARNING! The ASI system does not automatically inhibit the sweeper from backing up. The ASI system signals the operator when all the sweeper systems are safe to back up. Backing the sweeper is still in the control of the sweeper operator and care must be taken to avoid accident or injury from backing the sweeper.

Upon placing the transmission gear selector in the reverse position, the auxiliary engine will automatically be idled and the sequence of the raising operations will begin. Also, to notify the operator that the sequence of operations is in progress, a red “HOLD” indicator on the display will begin flashing. As soon as the pick-up head is fully raised, the green “READY” indicator will turn on to notify the operator that the sweeper is ready to back up. To resume sweeping, the transmission must be taken out of reverse (turning the red indicator off) and the RESET switch can then be pressed (turning the green indicator off) which will automatically lower the gutter broom(s), if previously ON, lower the pick-up head and resume the previous engine speed.

To momentarily interrupt sweeping, such as at a railroad crossing, the RESET switch can be pressed. Upon pressing this switch, the auxiliary engine will be idled and the sequence of the raising operations will begin and the



indicators will function as described previously. After driving forward such as in crossing the railroad crossing, the RESET switch can be pressed again to resume sweeping and resume the previous engine speed.

CONFIGURABLE FEATURES

Auto Sweep Interrupt option includes several configurable features to allow the system to be customized for the needs of the user. To access the settings, go to the User Settings page and select Auto Sweep Interrupt. The user settings are PIN code protected. The default PIN code is "2345".

ASI Auto/Manual: Selecting "Auto" enables the ASI System. In Auto mode the system will automatically interrupt sweeping when shifting into reverse or pressing the reset switch. If overspeed interrupt is enabled, it will also interrupt sweeping if the overspeed interrupt speed is exceeded. "Manual" mode disables all functions of the ASI. The default setting is "Auto".

ASI RPM Return: Turning the ASI RPM Return setting "On" will allow the engine speed to automatically return to its previous setting before being interrupted. If this setting is turned "Off", the engine rpm will remain at idle after the Reset switch is pressed requiring the operator to manually increase the engine speed. The default setting is "On".

Overspeed Interrupt: If "Enabled", the system will monitor vehicle speed and produce an audible and visual warning if sweeping with excessive vehicle speed. If the interrupt speed is exceeded, the ASI system will interrupt sweeping. The default setting is "Disabled".

ASI Warning Speed: This is the speed at which a warning message and alarm will sound if the Overspeed Interrupt feature is enabled. The range is 5 to 20 mph. The default setting is 8 mph.

ASI Interrupt speed: This is the speed at which the ASI will interrupt sweeping if the Overspeed Interrupt feature is enabled. When setting the ASI Interrupt Speed, maintain a minimum of 2 to 4 mph higher setting than the Warning speed. This will give some time to allow the operator to react to the ASI Warning before the ASI interrupt activates. The range is 8 to 25 mph. The default setting is 12 mph.

Reverse Trigger: "Enabled" will allow the ASI to trigger when the transmission is shifted to reverse. If "Disabled" is selected, the ASI will NOT activate when the transmission is shifted into reverse. The ASI Reset switch can still be used to manually activate the ASI and the ASI Overspeed Interrupt will still be functional if it is enabled. When disabled, use caution when backing up with the pick-up head down or gutter brooms on to prevent damage to the sweeper. If ASI Mode is set to AUTO and the reverse trigger is disabled, when the sweeper is shifted to reverse a caution message will appear on the control panel display.

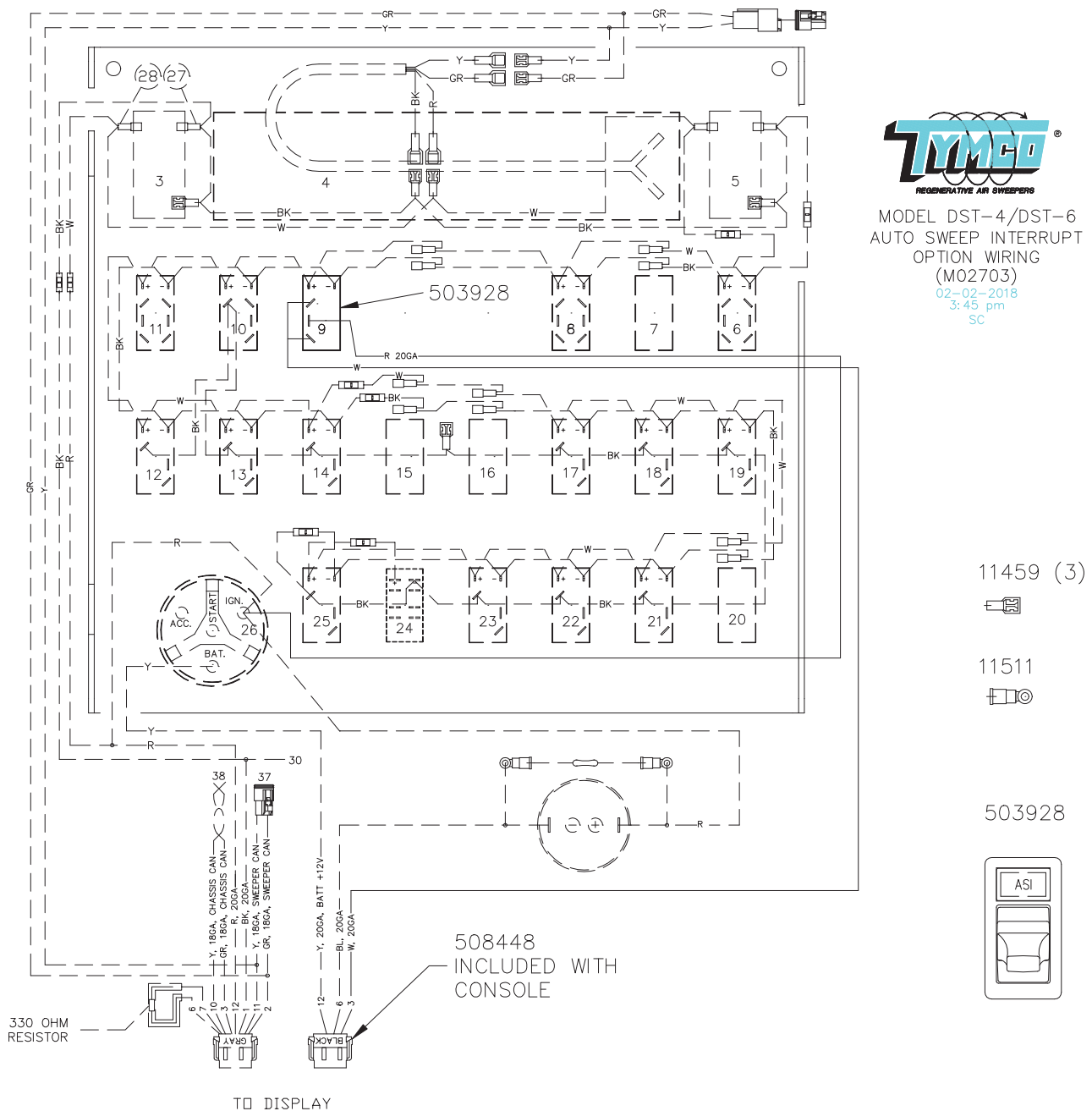


OPT 3

CAUTION: Make sure the Reverse Operational Pick-up Head System is properly adjusted to prevent damage to the pick-up head when operating in reverse.

ASI Head Operation: (DST-4 and DST-6 Only) In many applications of the DST-4 and DST-6, such as a cement plant, it may be undesirable to raise the pick-up head while the engine is running. This setting will allow the ASI system to raise the brooms and lower the RPM, but leave the pick-up head down. If "Normal" is selected the ASI system will raise the pick-up head as described above. If "Do not raise" is selected the ASI system will NOT raise the pick-up or turn off the BAH during the interrupt cycle. All other functions will operate as described above. The operator will have to raise the head using the pick-up head switch. The default setting is "Normal".

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MODEL DST-4/DST-6
 AUTO SWEEP INTERRUPT
 OPTION WIRING
 (M02703)
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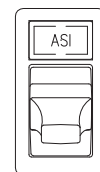
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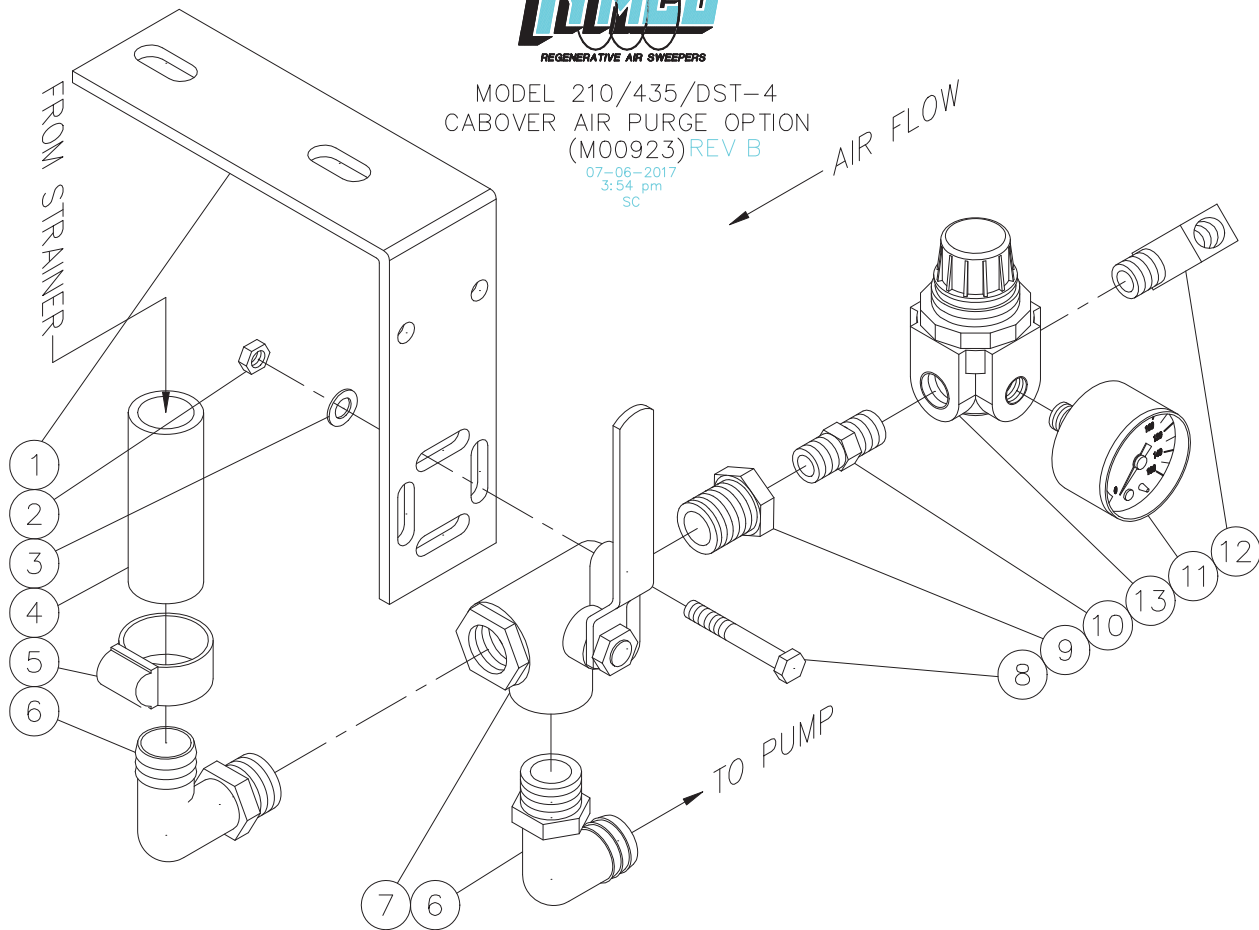
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 CONSOLE

OPT 4



MODEL 210/435/DST-4
 CABOVER AIR PURGE OPTION
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**TYMCO MODEL 210/435/DST-4 CABOVER
 AIR PURGE OPTION
 DWG-M00923**

ITEM	QTY	PART NO	DESCRIPTION
	1	504055	Air Purge Option - Cabover
1	1	5016401	Air Purge Bracket
2	2	10246	Nut - 1/4-20 Top Lock
3	2	10303	1/4" Flat Washer
4	1	5016404	Hose - 3/4 x 2-3/4
5	1	11318	Hose Clamp - 3/8 x 3/4
6	2	20655	Fitting - 1/2 MPT x 3/4 HB 90° Elbow
7	1	12199	3-Way Diversion Valve 1/2 FPT
8	2	20110	Bolt - 1/4-20 x 2 HHCS
9	1	10845	Fitting - 1/2 x 1/4 Bushing
10	1	10828	Fitting - 1/4 Hex Nipple
11	1	12821	Pressure Gauge 0-160 PSI
12	1	10815	Fitting - 1/4 Street Elbow
13	1	12820	1/4 NPT Mini Regulator
Not Shown	1	5017472	Decal - Water System Purge

NOTE: TYMCO recommends a female quick disconnect on customer's air line to prevent contamination.

OPT 4

WATER SYSTEM SHOP AIR PURGE

FUNCTION: The Shop Air Purge option provides a convenient way to winterize the water system using shop air. The option provides a valve assembly to easily divert the water supply from the pump inlet and inject regulated air pressure into the water system to purge the system of water. The BlueLogic system will guide the operator through the procedure and electronically “tag” the system as winterized until water is returned to the system. The air purge assembly air inlet is a male ¼ NPT fitting. Due to the variety of quick disconnect air hose couplings, a quick disconnect air hose fitting is not provided. TYMCO recommends installing the proper quick disconnect fitting with a protective cap to prevent system contamination and provide a convenient method to connect the air supply.

PROCEDURE:

1. Turn on the sweeper ignition and do NOT start the auxiliary engine.
2. Press the menu button to access the page select menu.
3. Select Service Tools then Water System Winterization.
4. On the Winterization page, press the Winterize Water System button.
5. Open the water tank drain valve and wait for the water to drain. If equipped with Pressure Inlet Water Injection, turn it on and open the ball valve near the pressure inlet. Press Next.
6. Turn on all water solenoid switches. The main water switch can remain off. Press Next.
7. Connect the shop air supply to the air purge assembly. Make sure the static air pressure is regulated to 30 to 40 psi.
8. Rotate the air purge ball valve to the air position.
9. Press Next on the “Connect Shop Air” dialog box to start blowing out the lines.
10. Allow time for the water lines to purge. If equipped with a Cat pump and hose reel, manually open the wash down line to blow out the wash hose. Inspect each nozzle to ensure all water has been purged and is blowing air. Press Next when all nozzles are blowing air.
11. If equipped with a Cat water pump, start the auxiliary engine when prompted. The pump will stay engaged for a few seconds and then shut off to purge all three cylinders of water.
12. Turn the air purge valve back to the water position and remove shop air.
13. Drain the pre-filter bowl (Don't lose rubber seal!)



**MENU
BUTTON**

NOTICE: The air purge assembly and software interface are tools to successfully winterize the system. It is the operator's responsibility to ensure the procedure is followed and the system is purged of water and successfully winterized.

OPT 4

Once completed, the water system will be electronically tagged as winterized. The winterized icon will be shown on the main page to indicate the water system is winterized. The winterization tag will be removed when the presence of water is sensed in the system. The winterization and de-winterization events will be logged in the Water System Winterization Log. To access the log, go the Winterization Page and press the Winterization History button.



**WINTERIZED
ICON**

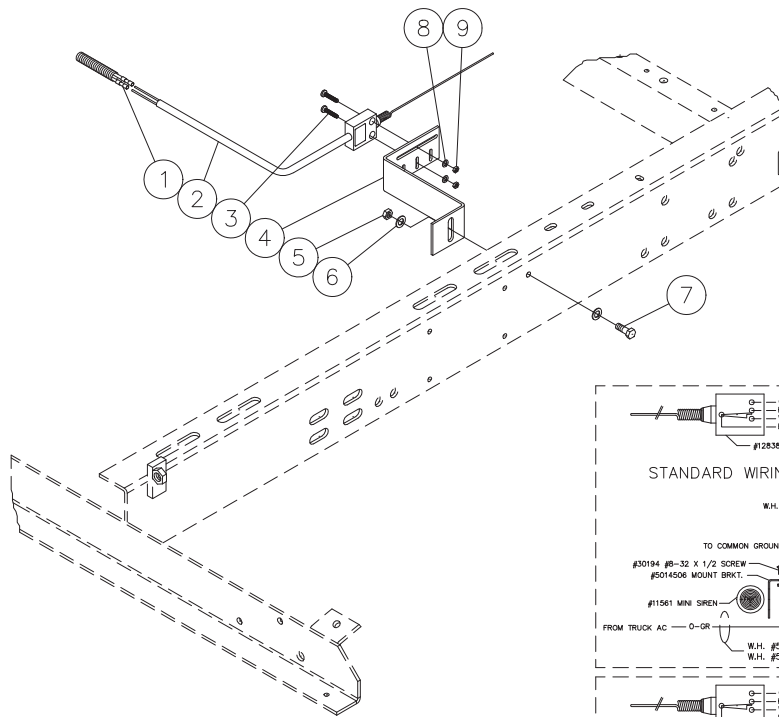


WINTERIZATION MENU

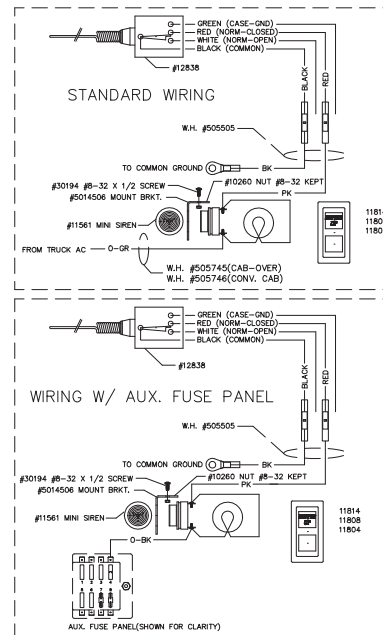
CAUTION: The Cat water pump will experience pump failure due to piston cup wear if air purge valve is left in purge position when water system pump is turned on with water in tank(s). The liquid level sensor will allow the pump to run, but pump draws air through purge valve causing pump piston cups to fail due to friction. Dry run time of piston cups is approximately five minutes.

Always check purge valve position before running the system.

OPT 11



MODEL 210/435
 HOPPER UP ALARM ASSY
 (M01422) REV A
 11/11/19
 11:35 am
 SC



HOPPER UP ALARM ASSEMBLY PARTS LIST DWG-M01422

ITEM	QTY	PART NO	DESCRIPTION
1	1	505494	Hopper Up Alarm Assembly
-	1	505505	Wire Harness (Ford)
2	1	509375	Wire Harness (Isuzu/Freightliner M2)
3	2	12838	Switch - Spring Wire Wobble Indicator
4	1	20186	Screw - 10-32 x 1 Pan Head
5	1	5018129	Mount - Switch
6	1	10246	Nut - 1/4-20 Top Lock
7	2	10303	1/4" Flat Washer
8	1	10115	Bolt - 1/4-20 x 1-1/4 HHCS
9	2	10339	#10 Flat Washer SAE
		10241	Nut - 10 - 32 Kept

NOT SHOWN

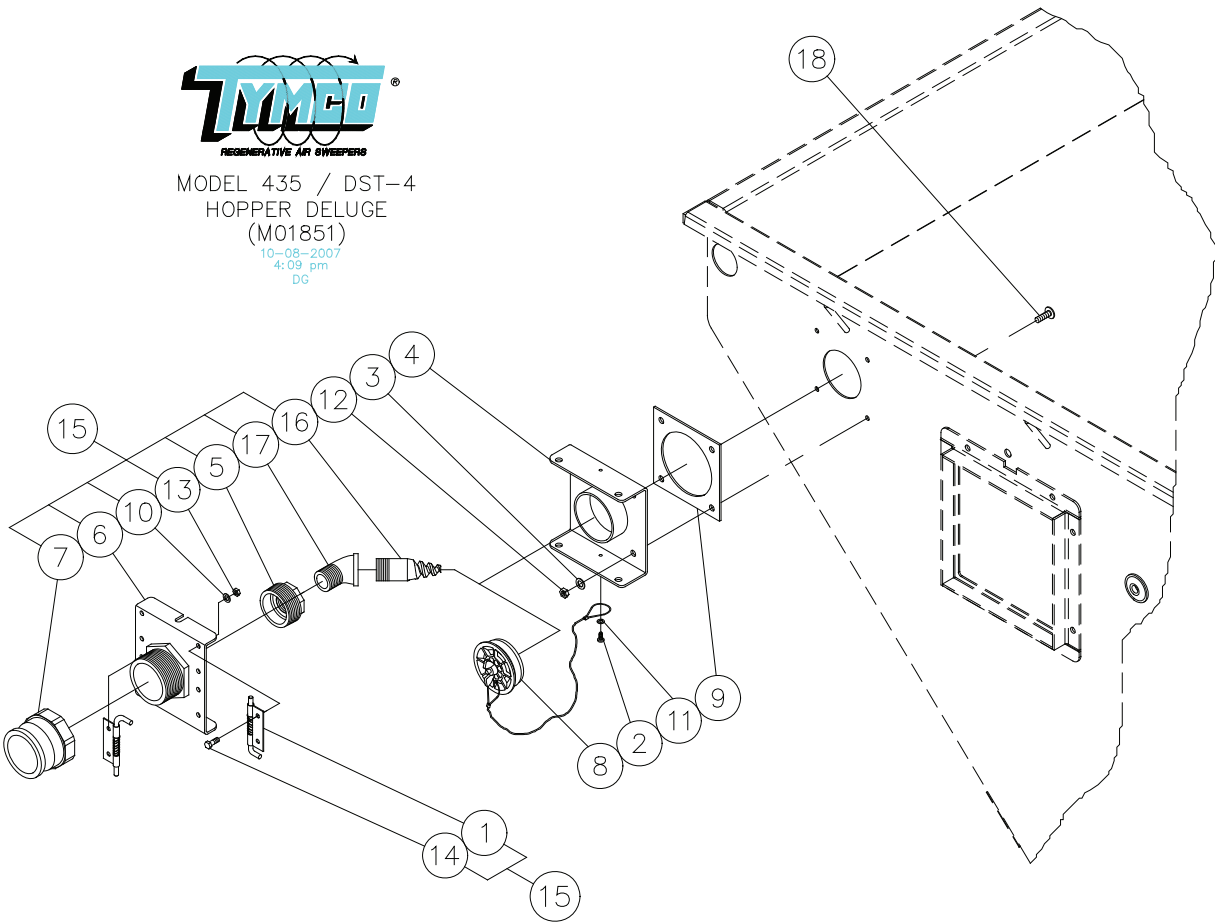
1	505745	Wire Harness - Hopper Up Alarm (Isuzu/FL M2)
1	505746	Wire Harness - Hopper Up Alarm (Ford)
1	11561	Mini Siren
1	5014506	Bracket - Mini Siren Mount
1	30194	Screw - #8-32 x 1/2" Pan Head
1	10260	Nut - #8-32 Kept

OPT 13

HOPPER DELUGE



MODEL 435 / DST-4
HOPPER DELUGE
(M01851)
10-08-2007
4:09 pm
DG



TYMCO MODEL 435 HOPPER DELUGE ASSEMBLY PARTS LIST DWG-M01851

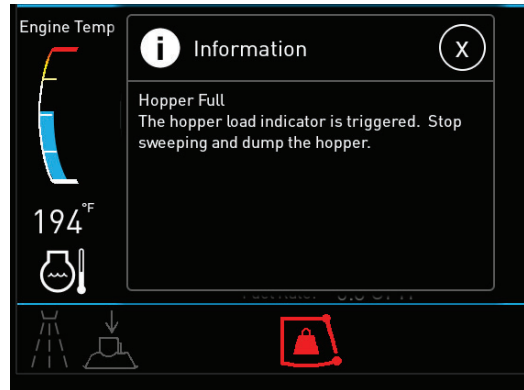
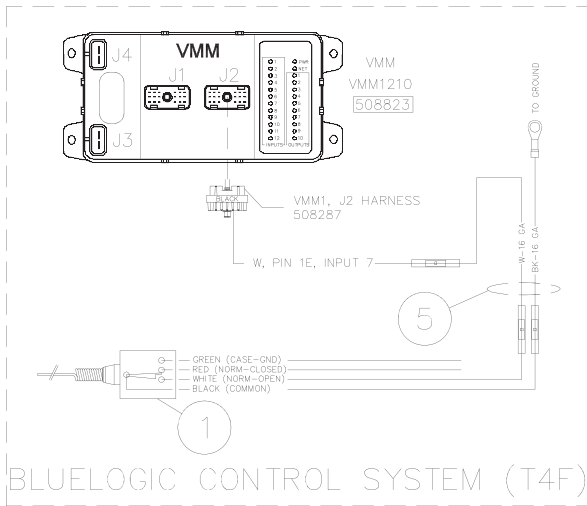
ITEM	QTY	PART NO	DESCRIPTION
	1	506635	Hopper Deluge Assembly
1	2	5018227	Latch - Hinge
2	1	10107	Screw - 10-24 x 1/2 PPH Roll
3	4	10305	5/16" Flat Washer
4	1	505429	Mount Weldment
5	1	10675	Fitting - 2 x 1 NPT Reducer Galvanized
6	1	505433	Nozzle Mount Weldment
7	1	12538	Adapter - 2-1/2" Male x FNPT
8	1	505498	3" Plug Assembly
9	1	5016102	Gasket
10	4	10303	1/4" Flat Washer
11	1	10339	#10 Flat Washer
12	4	10229	Nut - 5/16-18 Top Lock
13	4	10246	Nut - 1/4-20 Top Lock
14	4	10110	Bolt - 1/4-20 x 3/4
15	-	506638	Deluge Quick Disconnect Nozzle Assembly
16	1	30868	Fitting - 1" NPT Swivel Jet Water Nozzle
17	1	40784	Fitting - 1" NPT Street Elbow 45° Galvanized
18	4	20195	Bolt - 5/16-18 x 1 Phillips Truss Head

OPT 16

TYMCO MODEL 210/435/DST-4 BLUELOGIC HOPPER LOAD INDICATOR

FUNCTION

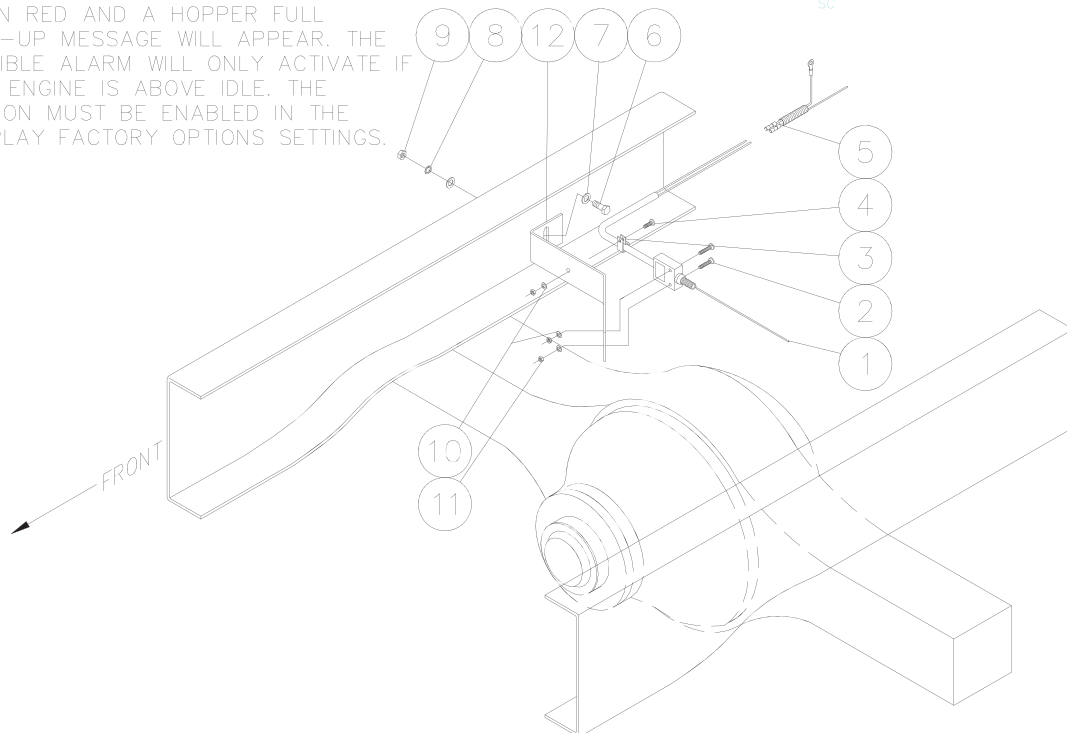
The hopper load indicator will provide an audible alarm and an amber indicator light on the display when the hopper load switch is triggered. If the switch remains on for 2 seconds, the indicator will turn red and a hopper full pop-up message will appear. The audible alarm will only activate if the engine is above idle. When the hopper load indicator is triggered, stop sweeping and dump the hopper. The hopper load trigger is based on weight. The hopper fullness by volume may vary based on the material being swept. For light material such as leaves, the hopper volume may be full before the indicator is triggered.



MODEL 210/435/DST-4
HOPPER LOAD INDICATOR
(M02803)

06-03-2019
4:18 pm
SC

THE HOPPER LOAD INDICATOR WILL PROVIDE AN AUDIBLE ALARM AND AN AMBER INDICATOR LIGHT ON THE DISPLAY WHEN THE SWITCH IS TRIGGERED. IF THE SWITCH REMAINS ON FOR 2 SECONDS, THE INDICATOR WILL TURN RED AND A HOPPER FULL POP-UP MESSAGE WILL APPEAR. THE AUDIBLE ALARM WILL ONLY ACTIVATE IF THE ENGINE IS ABOVE IDLE. THE OPTION MUST BE ENABLED IN THE DISPLAY FACTORY OPTIONS SETTINGS.

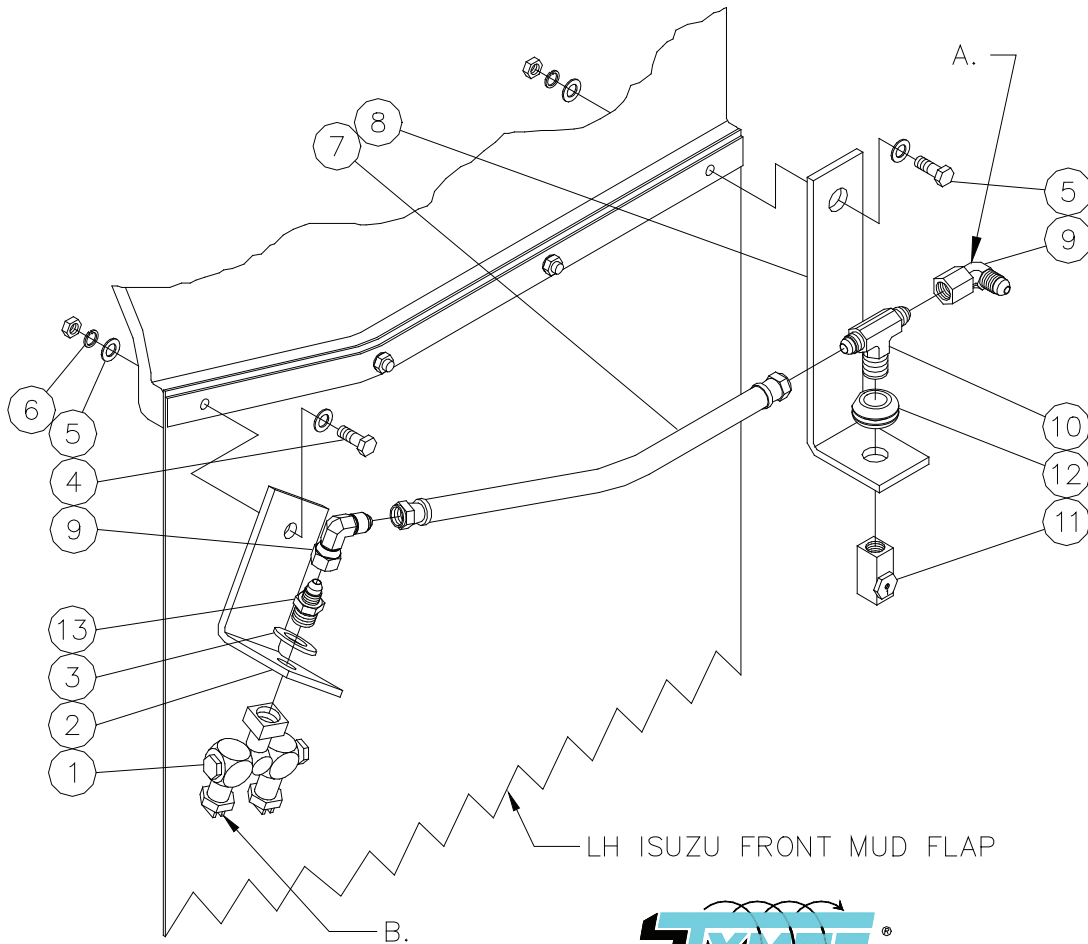


OPT 16

**TYMCO MODEL 210/435/DST-4
HOPPER LOAD INDICATOR PARTS LIST
DWG-M02803**

ITEM	QTY	PART NO	DESCRIPTION
	1	508972	Hopper Load Indicator - BlueLogic
1	1	12838	Hopper Load Switch
2	2	20186	Screw - #10-32 x 1"
3	1	12354	Clamp
4	1	30133	Screw - #10-32 x 1/2"
5	1	508356	Harness - Hopper Load Indicator
6	1	10117	Bolt - 5/16 x 1
7	2	10305	5/16" Flat Washer
8	1	10306	5/16" Lock Washer
9	1	10205	Nut - 5/16 Hex
10	3	10339	#10 Flat Washer
11	3	10241	Nut - #10-32 Kept
12	1	5017163	Hopper Load Indicator Switch Bracket

OPT 17



NOTE:
 A. CONNECT GUTTER BROOM WATER SUPPLY HOSE.
 B. G.B. NOZZLE ASSY. MOUNTED ON ISUZU FRONT MUD FLAP.



MODEL DST-4
 LOW EMISSION PACKAGE OPTION
 (M02219)

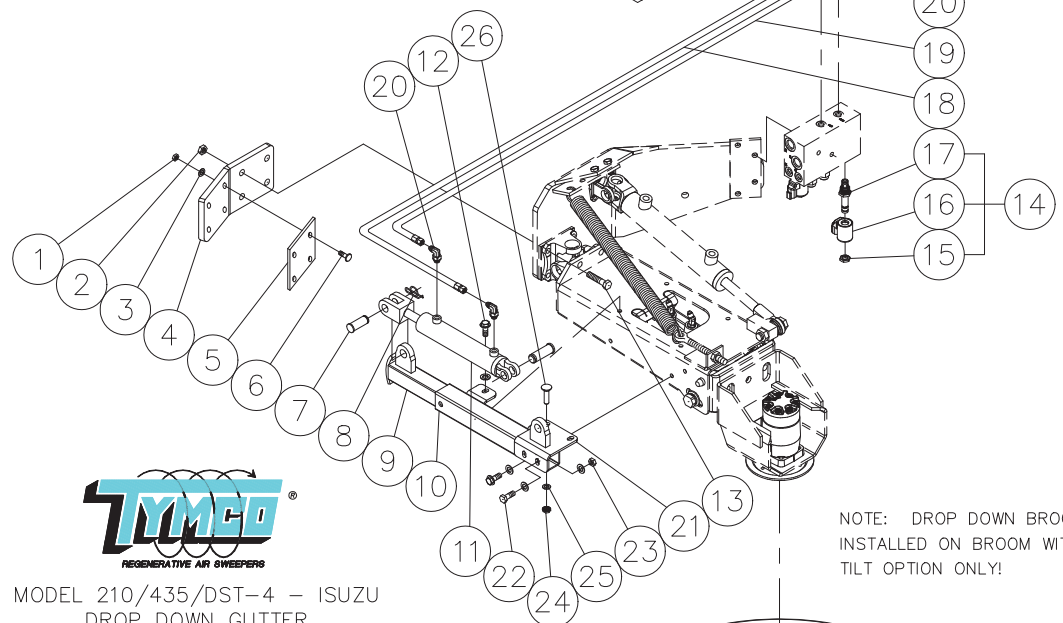
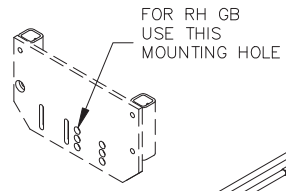
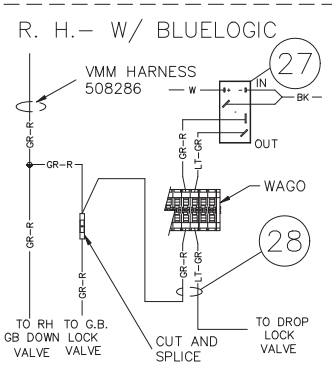
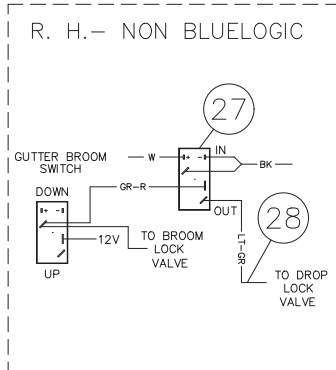
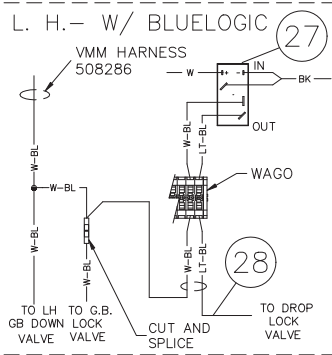
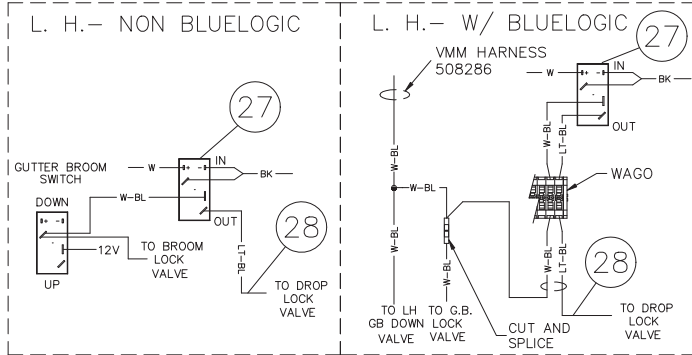
11-29-2011
 1:00 pm
 DG

DST-4 LOW EMISSION OPTION PARTS LIST DWG-M02219

ITEM	QTY	PART NO	DESCRIPTION
	1	507684	Low Emission Package - DST-4
1	2	20810	Duo Swivel Fan Nozzle w/11003 Tip
2	2	5012672	Mount - Gutter Broom Nozzle
3	2	10311	1/2" Flat Washer
4	4	10111	Bolt - 1/4-20 x 1 HHCS
5	8	10303	1/4" Flat Washer
6	4	10304	1/4" Lock Washer
7	2	800375	Hose Assembly
8	2	5010877(5019242)	Mounting Bracket (Drop Down Broom Option)
9	4	30875	Fitting - 1/4 Swivel x 1/4 JIC 90°
10	2	10887	Fitting - 1/4 Branch Tee
11	2	20859	Fitting - 1/4 FPT Whirljet Nozzle
12	2	12576	Grommet - 0.500 I.D. x 0.750 O.D.
13	2	20829	Fitting - 1/4 JIC - 1/4 NPT Str.

OPT 18

DROP DOWN GUTTER BROOM OPTION



MODEL 210/435/DST-4 - ISUZU
 DROP DOWN GUTTER
 BROOM OPTION (LH)
 (M01807) REV C
 11-03-2017
 11:49 am
 SC

NOTE: DROP DOWN BROOM
 INSTALLED ON BROOM WITH
 TILT OPTION ONLY!

NOTE: ALWAYS RAISE BROOM COMPLETELY
 BEFORE CHANGING FROM ONE BROOM POSITION
 TO THE OTHER ("IN" TO "OUT" OR "OUT" TO "IN").
 ADJUST BROOM TILT FOR PROPER PATTERN
 AFTER LOWERING BROOM.

NOTE: USE STANDARD VERTICAL DIGGER
 GUTTER BROOM SEGMENTS
 (9" FOR 210 & 11" FOR 435/DST-4).

OPT 18

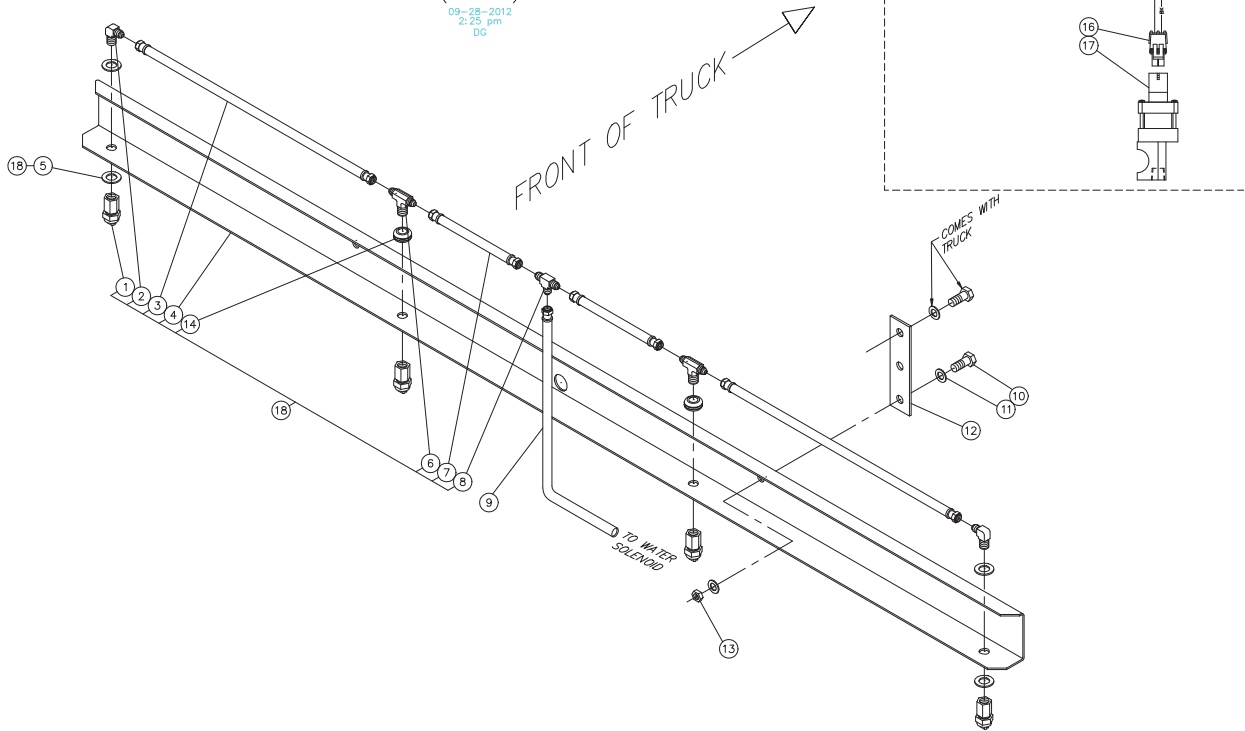
TYMCO MODEL 210/435/DST-4 DROP DOWN GUTTER BROOM OPTION PARTS LIST DWG-M01807

ITEM	QTY	PART NO	DESCRIPTION
	1	506561	Drop Down Broom Option - LH
	1	506562	Drop Down Broom Option - RH
1	4	10275	Nut - 3/8-16 KEPT
2	4	10228	Nut - 7/16-14 Top Lock
3	10	10307	3/8" Flat Washer
4	1	5018584	Wear Pad Mount Bracket
5	1	5018585	Scrub Wear Pad
6	4	40179	Bolt - 3/8-18 x 1-1/2 Carriage Head
7	2	10405	Clevis Pin
8	2	10434	Rue Ring Locking Cotter - 3/4"
9	1	505889	Ram Arm Extension Weldment
10	1	507668	Positioner Mount Weldment - Unistrut
11	1	503364	Hydraulic Cylinder
12	3	50122	Bolt - 3/8-16 x 1 HWH Self Tap
13	4	40161	Bolt - 7/16-14 x 2-1/2 HHCS
14	1	12910	Lock Valve Assembly
15	1	12921	Nut - Coil
16	1	12912	Coil
17	1	12920	Lock Valve Cartridge
18	1	501129	Hose Assembly - 1/4 x 39" Hydraulic
19	1	500875	Hose Assembly - 1/4 x 29" Hydraulic
20	4	20782	Fitting - 1/4 JIC x 1/4 Boss 90°
21	1	507669	Tab Weldment - GB Unistrut
22	2	10128	Bolt - 3/8-16 x 1 HHCS
23	2	10225	Nut - 3/8-16 Top Lock
24	1	10272	Nut - 5/16-18 Hex Kep
25	1	10305	5/16 Flat Washer
26	1	40178	Bolt - 5/16-18 x 1 1/4 Ch
27	1	506252	Switch - Broom Position
28	1	506255	Wire Harness - LH DD GB (Non-BlueLogic)
-	1	508904	Wire Harness - LH DD GB (BlueLogic)
-	1	506256	Wire Harness - RH DD GB (Non-BlueLogic)
-	1	508905	Wire Harness - RH DD GB (BlueLogic)

OPT 19



ISUZU
 SPRAY BAR ASSEMBLY
 (M01620) REV E
 09-28-2012
 2:25 pm
 DC



TYMCO MODEL 210/435/DST-4 CABOVER SPRAY BAR ASSEMBLY PARTS LIST DWG-M01620

ITEM	QTY	PART NO	DESCRIPTION
	1	504642	Spray Bar Assembly - Cabover
1	4	10857	Spray Nozzle - 1/4 T
2	2	10818	Fitting - 1/4 NPT x 1/4 JIC 90°
3	2	502366	Hose Assembly - 1/4 Water x 20"
4	1	5017097	Mount Bracket - 4 Nozzle (Isuzu)
5	4	10311	1/2" Flat Washer
6	2	10887	Fitting - 1/4 Branch Street Tee
7	2	504643	Hose Assembly - 1/4 Water x 9"
8	1	10816	Fitting - 1/4 JIC x 1/4 JIC Tee
9	1	502129	Hose Assembly - 1/4 Water x 164" (Isuzu)
10	2	10128	Bolt - 3/8-16 x 1 HHCS
11	4	10307	3/8" Flat Washer
12	2	5019421	Fender Hold Down
13	2	10275	Nut - 3/8-16 KEPT
14	2	12576	Grommet - 0.500 I.D. x 0.750 O.D.
15	1	505135	Switch - SPST
16	1	507122	Wire Harness - Remcor
17	1	12962	Remcor Single Valve Assembly
18	1	509226	Front Bumper Spray Bar Subassembly
Not Shown	1	30681	Fitting - 1/4 NPT Close Nipple Nylon
Not Shown	1	30682	Fitting - 1/4 Hose Barb Insert Nylon
Not Shown	1	30683	Fitting - 1/4 FPT Swivel Nut Nylon

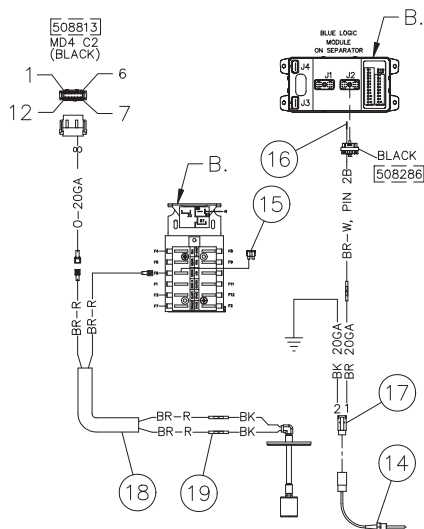
OPT 20

HYDRAULIC LEVEL/TEMPERATURE SHUTDOWN SYSTEM TYMCO MODEL DST-4 SND SERIES

FUNCTION

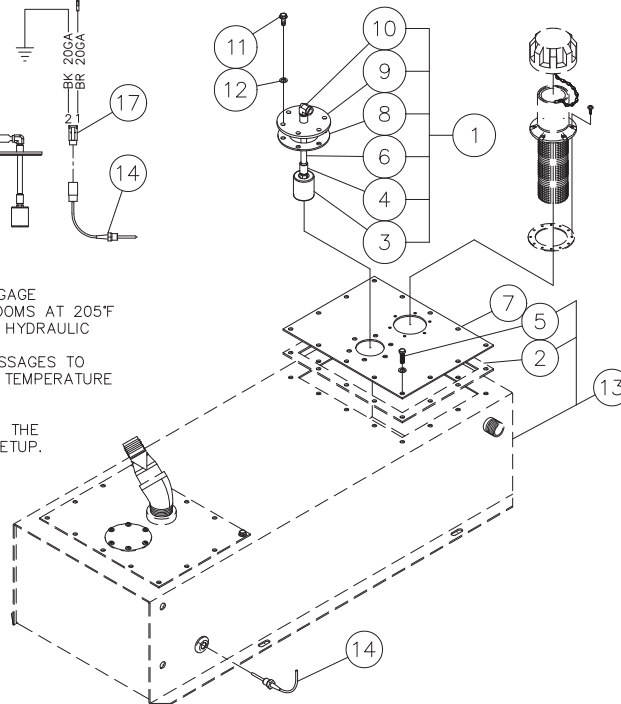
The Hydraulic Level/Temperature Shutdown Option includes a hydraulic oil temperature monitoring system and a hydraulic oil level switch. The hydraulic oil temperature system utilizes a temperature sender in the hydraulic tank and includes a hydraulic temperature gauge in the control console display. To access the gauge, navigate to the sweeper gauges page. See the controls section for more information. An amber warning icon will illuminate on the display if the hydraulic oil temperature exceeds 185°F (90°C). If the oil temperature exceeds 205°F (96°C), the gutter brooms will be disabled. When the oil is below 20°F, a message will instruct the operator to allow the engine to idle and operate the gutter broom to warm the oil. A float in the hydraulic tank will monitor oil level. If the oil level drops below the trigger point, the engine will be shut down immediately and message will pop up on the console display to indicate low hydraulic oil.

OPT 20



MODEL 435 COMDEX/CONV. CAB
 MODEL DST-4
 HYDRAULIC LEVEL/TEMP
 SHUTDOWN OPTION
 (M02854)
 03-05-2018
 11:16 am
 SC

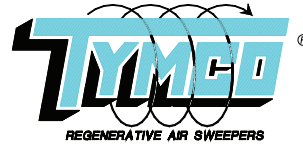
- NOTES:
 A. THE OPTION INCLUDES:
 1. HYDRAULIC TEMPERATURE GAGE
 2. DISABLES THE GUTTER BROOMS AT 205°F
 3. SHUTS OFF THE ENGINE IF HYDRAULIC OIL LEVEL IS LOW
 4. INDICATOR LIGHTS AND MESSAGES TO NOTIFY THE OPERATOR OF TEMPERATURE OR LEVEL TRIGGERS
 B. SHOWN FOR CLARITY
 C. OPTION MUST BE ENABLED IN THE DISPLAY FACTORY OPTIONS SETUP.



TYMCO MODEL 435 - ISUZU NPR-XD COMDEX/CONVENTIONAL CAB/MODEL DST-4 HYDRAULIC LEVEL/TEMPERATURE SHUTDOWN SYSTEM PARTS LIST DWG-M02854

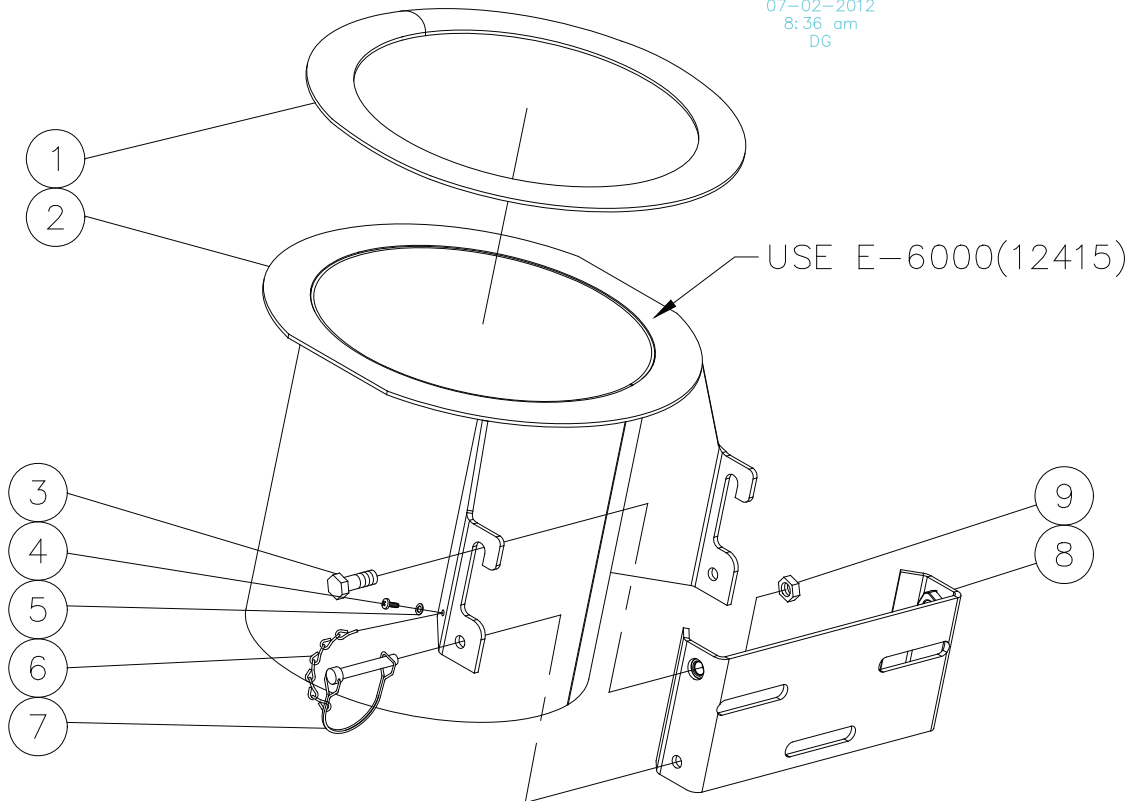
ITEM	QTY	PART NO	DESCRIPTION
	1	508984	Hydraulic Level/Temp Shutdown - BlueLogic
1	1	506482	Hydraulic Level Switch Assembly
2	(Shown for Clarity)	20559	Gasket - Hydraulic Reservoir
3	1	12733	Hydraulic Float Switch
4	1	30743	Fitting - 1/8 NPT Coupler Black
5	(Shown for Clarity)	10111	Screw - 1/4-20 x 1 HHCS
6	1	30621	Fitting - 1/8 NPT x 4 Nipple Black
7	1	5019226	Hydraulic Level/Temp. Lid - 435
8	(Comes w/22179)	5019220	Gasket - Level/Temp Switch
9	1	506481	Flange Adapter - Oil Level Float
10	1	10733	Fitting - 1/8 MPT - 1/8 FPT 90°
11	6	30104	Bolt - 1/4-20 x 3/4 Self Tap
12	6	10345	1/4" Rubber Clad Washer
13	(Shown for Clarity)	505703	Hydraulic Tank Assembly
14	1	21835	Hydraulic Oil Thermistor
15	1	11810	ATO Fuse - 3 Amp
16	1	21507	Terminal
17	1	508993	Harness - Hydraulic Oil Thermistor
18	1	508994	Harness - Oil Level Switch
19	2	21599	Butt Splice 18-22 Ga. C&S

OPT 22



MODEL 435 - ISUZU
REMOVABLE SUCTION TUBE OPTION
(M01813)

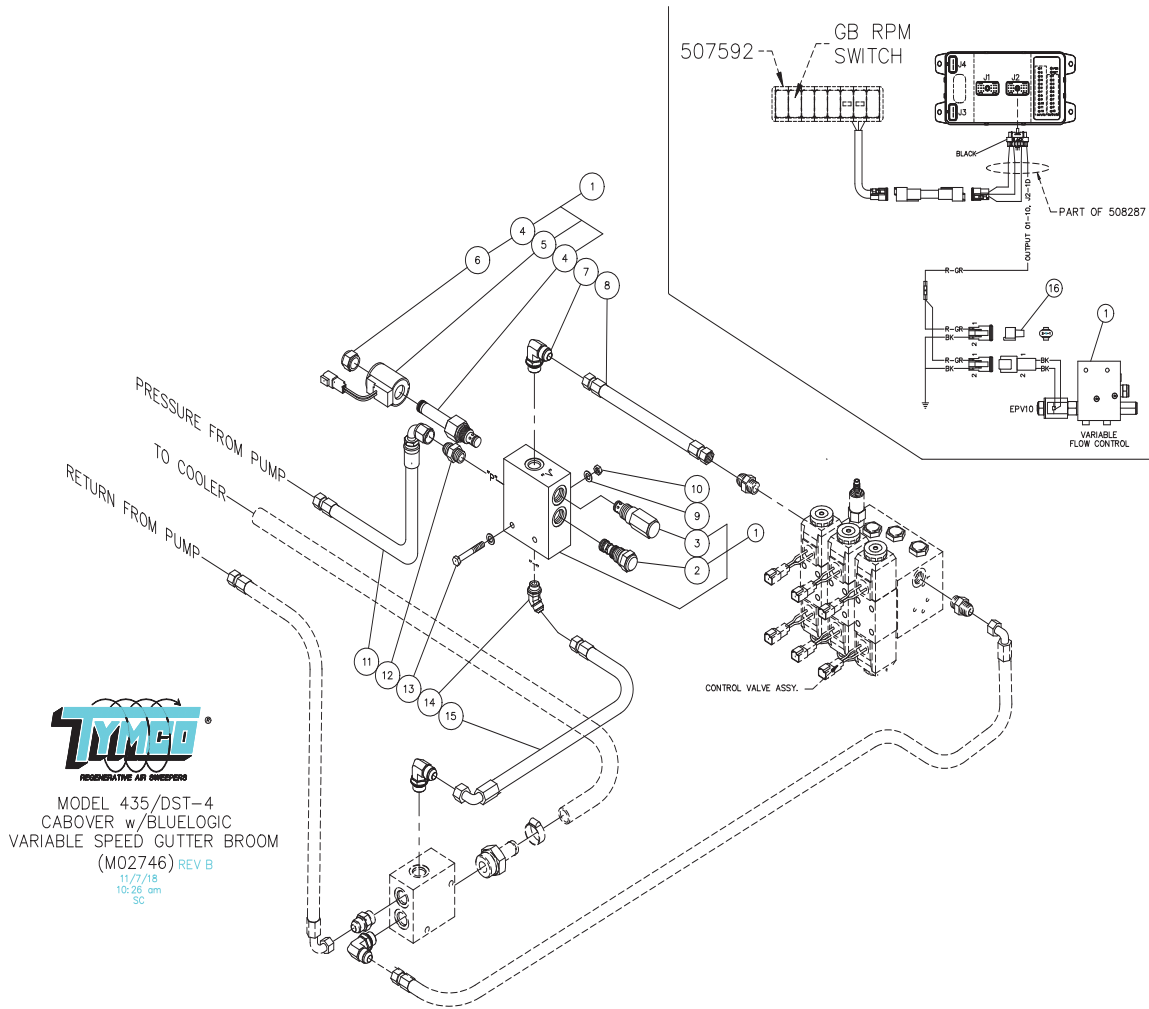
07-02-2012
8:36 am
DG



TYMCO MODEL 435/DST-4 - CABOVER REMOVABLE SUCTION TUBE OPTION PARTS LIST DWG-M01813

ITEM	QTY	PART NO	DESCRIPTION
	1	506611	Removable Suction Tube Option
1	1	505313	Seal
2	1	506307	Removable Suction Transition
-	-	506942	Removable Suction Transition, SRE Coated
-	-	507048	Removable Suction Transition, DST-4
3	2	10139	Bolt - 1/2-13 x 1-1/2 HHCS
4	2	30138	Screw - 10-24 x 3/4 Phillips
5	2	10339	#10 Flat Washer
6	2	12605	Chain (6 Links)
7	2	10422	Snap Pin - 3/8 x 1-3/4
8	1	506306	Weldment Mount - Removable Suction Transition
9	2	10201	Nut - 1/2-13 Hex

OPT 23





 MODEL 435/DST-4
 CABOVER w/BLUELOGIC
 VARIABLE SPEED GUTTER BROOM
 (M02746) REV B
 11/7/18
 10:26 am
 SC

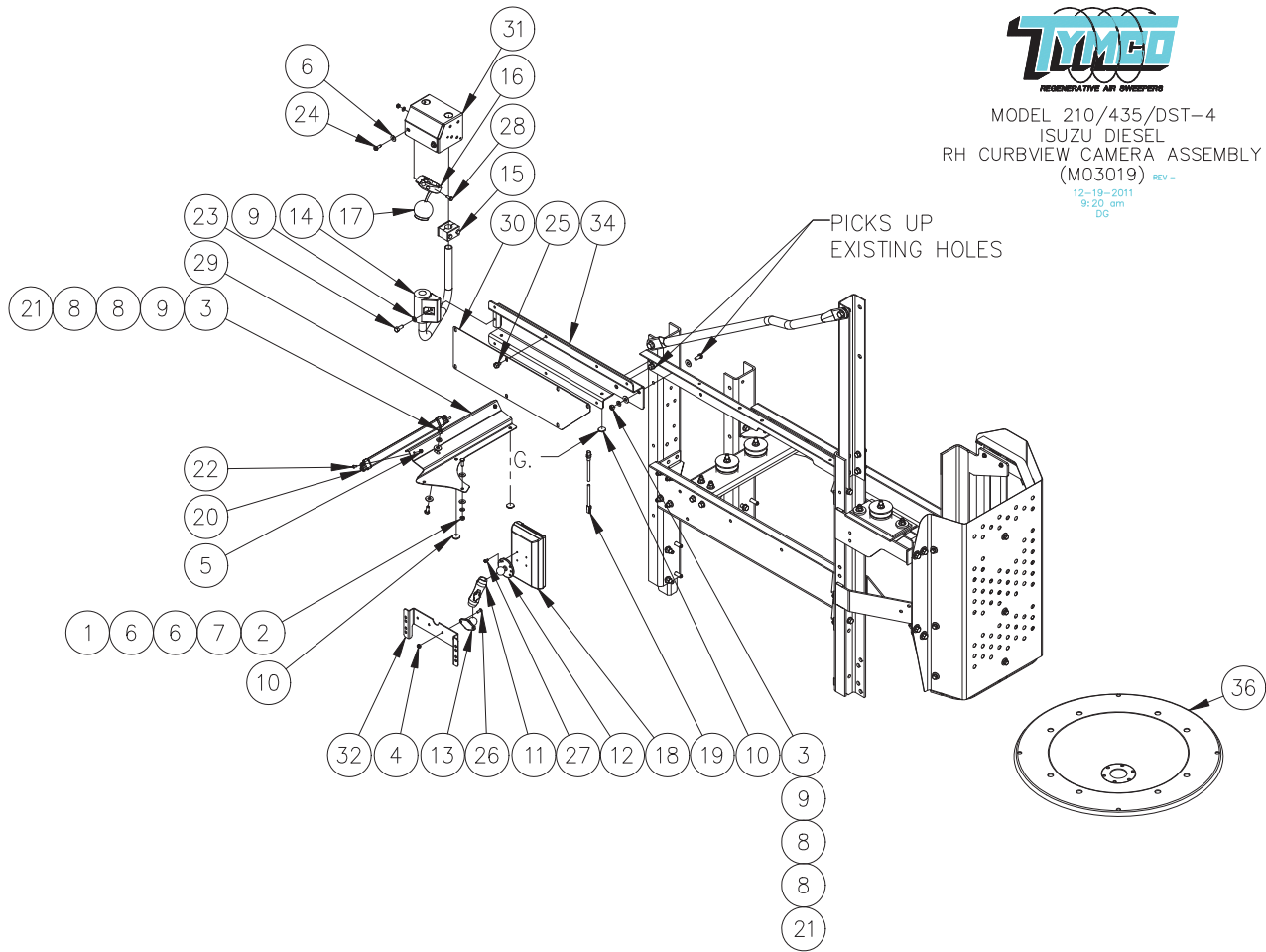
TYMCO MODEL 435/DST-4 - CABOVER VARIABLE SPEED GUTTER BROOM OPTION PARTS LIST DWG-M02746

ITEM	QTY	PART NO	DESCRIPTION
	1	508354	Variable Speed Gutter Broom - Cabover - FT4
1	1	505982	Variable Flow Control Manifold
2	1	5055637	Diff. Press. Sensing Valve
3	1	505638	Relief Valve
4	1	22241	EPV Valve (Cartridge Only)
5	1	22109	Coil - EPV Valve
6	1	22108	Coil Nut (Comes w/22241)
7	1	20711	Fitting - 1/2 OB x 1/2 JIC 90°
8	1	505038	Hose Assembly - 1/2 x 23" Hydraulic
9	4	10305	5/16 - Flat Washer
10	2	10272	Nut - 5/16-18 Hex Kept
11	1	503053	Hose Assembly - 1/2 x 34" Hydraulic
-	1	503755	Hose Assembly - 1/2 x 22" Hydraulic (w/Aux. Hyd.)
12	2	10786	Fitting - 1/2 Boss x 1/2 JIC Straight
13	2	10122	Bolt - 5/16-18 x 3" HHCS
14	1	30786	Fitting - 1/2 Boss x 1/2 JIC 45°
15	1	503755	Hose Assembly - 1/2 x 22" Hydraulic
16	1	21794	Deutsch Diode

OPT 24



MODEL 210/435/DST-4
ISUZU DIESEL
RH CURBVIEW CAMERA ASSEMBLY
(M03019) REV -
12-19-2011
9:20 am
DG



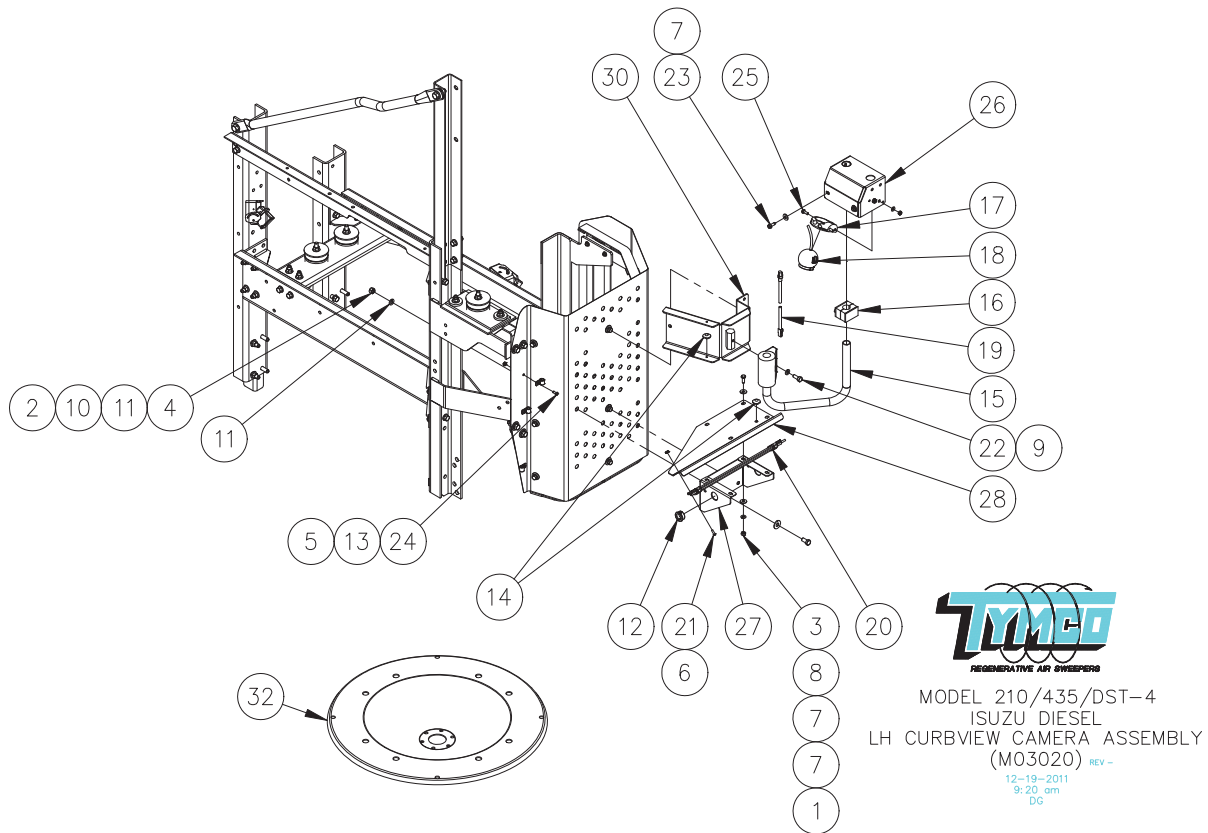
**TYMCO MODEL 210/435/DST-4 - ISUZU DIESEL
RH CURBVIEW CAMERA ASSEMBLY
DWG-M03019**

ITEM	QTY	PART NO	DESCRIPTION
	1	509491	RH CurbView Camera Assembly - Isuzu Diesel
1	2	10110	Bolt - 1/4-20 x 3/4 HHCS
2	2	10203	Nut - 1/4 UNC
3	2	10205	Nut - 5/16 UNC
4	2	10241	Nut - #10-32 KEP
5	2	10260	Nut - #8-32 KEPT
6	6	10303	Flat Washer - 1/4
7	2	10304	Lock Washer - 1/4
8	4	10305	Flat Washer - 5/16
9	3	10306	Lock Washer - 5/16
10	4	12954	Button Head Tie
11	1	13270	Double Socket Pedestal
12	1	13271	Ram Mount Ball
13	1	13641	Ram Diamond Ball Base
14	1	13761	Universal Mount - U-Shaped
15	1	13762	Clamp - 22mm Tube
16	1	13763	Camera Ball Mount
17	1	13764	Ball Camera - 120°

OPT 24

ITEM	QTY	PART NO	DESCRIPTION
18	1	13767	7" Monitor - Analog
19	1	13769	Camera Cable - 5M
20	1	13776	LED Strip Light - 360mm
21	2	20112	Bolt - 5/16-18 UNC x 3/4
22	2	20170	#8-32 x .50 Pan Head SCR - Phillips
23	1	20194	Bolt - 8mm-1.25 x 20
24	2	30104	Self Tap - 1/4-20 UNC x 3/4
25	7	30126	Self Tap - 5/16-18 UNC x 3/4
26	2	30133	Screw #10-32 x 1/2 Pan Head Phillips
27	3	30151	Screw - #10-32 x 3/8 Pan Head Phillips
28	2	40199	M6-1.00 x 16mm HHCS
29	1	5022263	RH Light Mount
30	1	5022265	RH Camera Mount Plate
31	1	5022266	Camera Guard
32	1	5022270	Ram Mount Plate
33	-	-	-
34	1	509482	RH Camera Mount
35	-	-	-
36	1	5022281	Gray Gutter Broom Disc
Not Shown	1	509479	Harness - RH CurbView
Not Shown	1	509489	Harness - RH CurbView Trigger

OPT 24



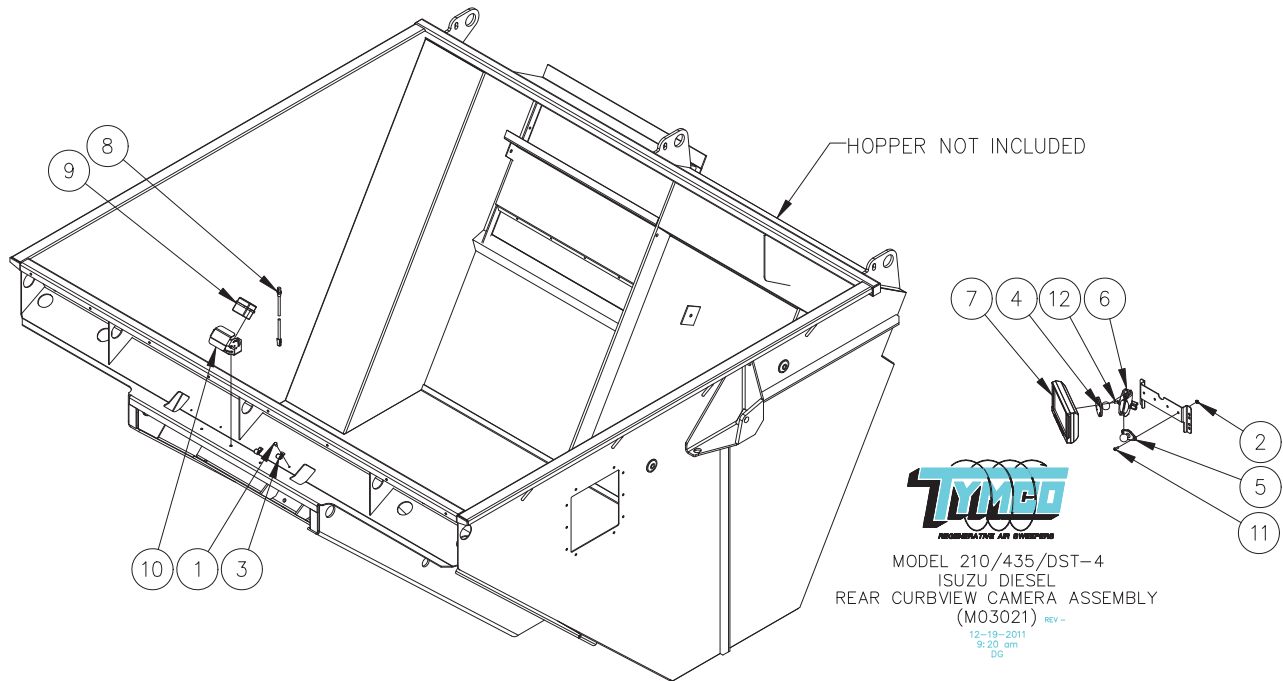
**TYMCO MODEL 210/435/DST-4 - ISUZU DIESEL
LH CURBVIEW CAMERA ASSEMBLY
DWG-M03020**

ITEM	QTY	PART NO	DESCRIPTION
	1	509497	LH CurbView Camera Assembly - Isuzu Diesel
1	4	10110	Bolt - 1/4-20 x 3/4 HHCS
2	1	10127	Bolt - 3/8-16 UNC x 3/4
3	4	10203	Nut - 1/4 UNC
4	1	10209	Nut - 3/8 UNC
5	3	10241	Nut - #10-32 KEP
6	2	10260	Nut - #8-32 KEPT
7	10	10303	Flat Washer - 1/4
8	4	10304	Lock Washer - 1/4
9	1	10306	Lock Washer - 5/16
10	2	10307	Flat Washer - 3/4
11	1	10308	Lock Washer - 3/4
12	1	12060	Snap Bushing 1.00 Black
13	3	12354	Clamp - Dipped 3/4
14	2	12954	Button Head Tie
15	1	13761	Universal Mount - U-Shaped
16	1	13762	Clamp - 22mm Tube
17	1	13763	Camera Ball Mount
18	1	13764	Ball Camera - 120°
19	1	13769	Camera Cable - 5M
20	1	13776	LED Strip Light - 360mm
21	2	20170	#8-32 x .50 Pan Head SCR - Phillips
23	1	20194	Bolt - 8mm-1.25 x 20

OPT 24

ITEM	QTY	PART NO	DESCRIPTION
24	2	30133	Screw #10-32 x 1/2 Pan Head Phillips
25	2	40199	M6-1.00 x 16mm HHCS
26	1	5022266	Camera Guard
27	1	5022267	LH Light Support Bracket
28	1	5022268	LH Light Mount
29	-	-	-
30	1	509485	LH Camera Mount
31	-	-	-
32	1	5022281	Gray Gutter Broom Disc
33	1	13773	Camera Mount
34	1	13771	Camera - Square, 70°
Not Shown	1	509480	Harness - LH CurbView
Not Shown	1	509490	Harness - LH CurbView Trigger

OPT 24



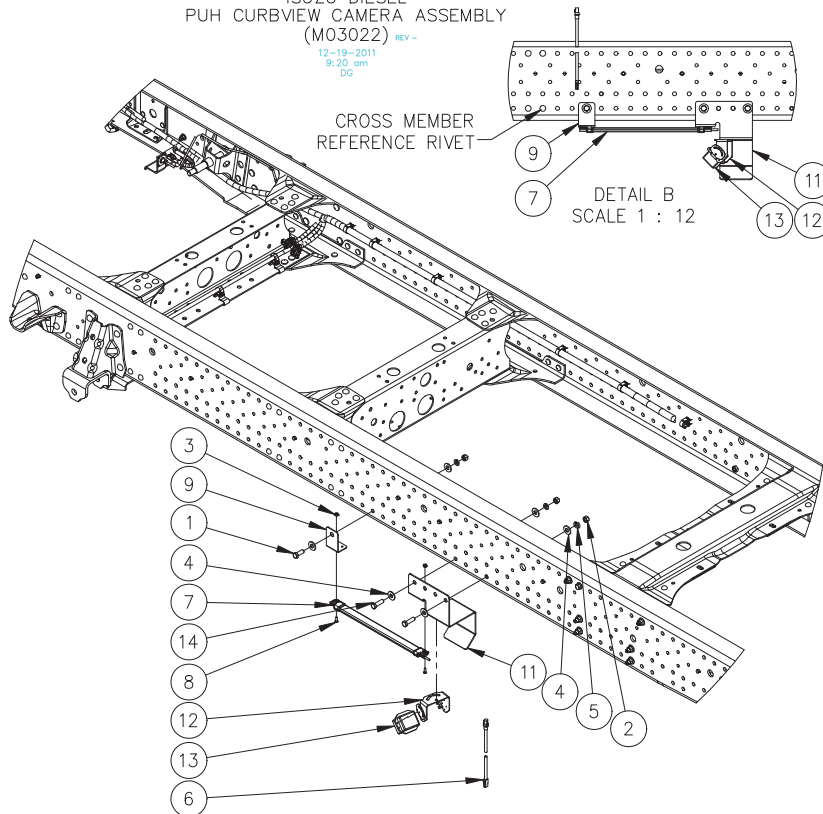
TYMCO MODEL 210/435/DST-4 - ISUZU DIESEL REARVIEW CURBVIEW CAMERA ASSEMBLY DWG-M03021

ITEM	QTY	PART NO	DESCRIPTION
	1	509514	Rear CurbView Camera Assembly - Isuzu Diesel
1	2	10107	#10-24 X 1/2 Self Tap Screw
2	2	10241	Nut - #10-32 Kep
3	2	12354	Clamp - Dipped 3/8
4	1	13271	Ram Mount Ball
5	1	13641	Ram Diamond Ball Base
6	1	13765	Double Socket Ram - 5.31"
7	1	13767	7" Monitor - Analog
8	1	13770	Camera able - 11M
9	1	13772	Camera - Square 120
10	1	13774	Camera Bracket
11	2	30133	Screw - #10-32 x 1/2 Pan Head Phillips
12	4	30151	Screw - #10-32 x 3/8 Pan Head Phillips

OPT 24



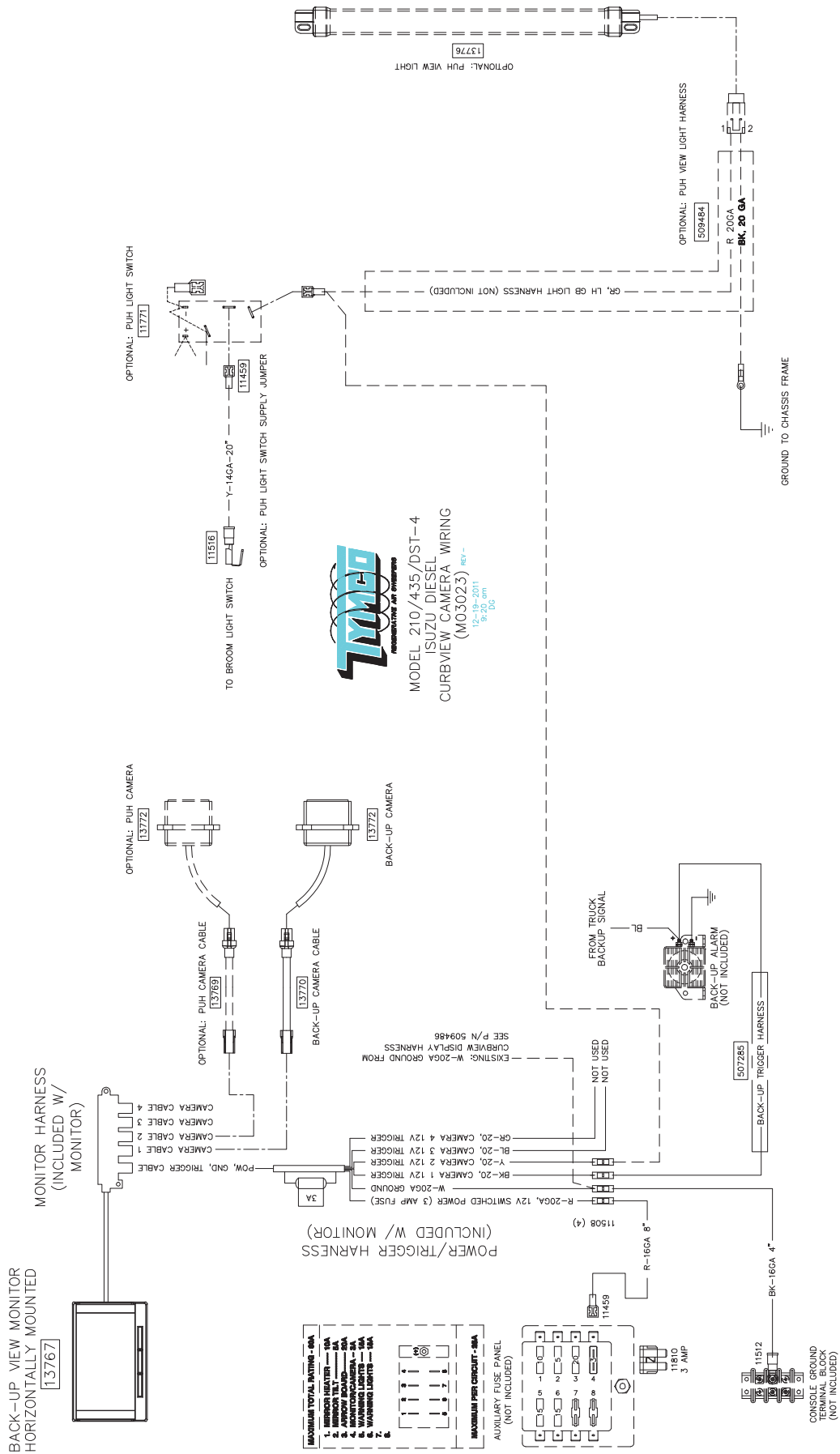
MODEL 210/435/DST-4
ISUZU DIESEL
PUH CURBVIEW CAMERA ASSEMBLY
(M03022) REV -
12-19-2011
9:20 am
DC

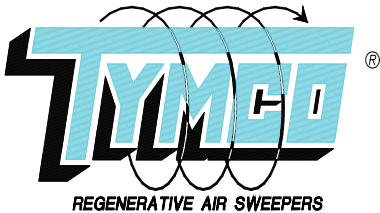


**TYMCO MODEL 210/435/DST-4 - ISUZU DIESEL
PICK-UP HEAD VIEW CURBVIEW CAMERA ASSEMBLY
DWG-M03022**

ITEM	QTY	PART NO	DESCRIPTION
	1	509515	PUH CurbView Camera Assembly - Isuzu Diesel
1	1	10128	Bolt - 3/8-16 UNC x 1
2	3	10209	Nut - 3/8 UNC
3	2	10260	Nut - #8-32 Kept
4	6	10307	Flat Washer - 3/8
5	3	10308	Lock Washer - 3/8
6	1	13769	Camera Cable - 5M
7	1	13776	LED Strip Light - 360mm
8	2	20170	#8-32 x .50 Pan Scr. - Phillips
9	1	5022272	Hanger - PUH Light
10	-	-	-
11	1	5022283	PUH Camera Mount
12	1	13773	Camera Bracket
13	1	13772	Camera - Square 120
14	2	10129	Bolt - 3/8-16 UNC x 1-1/4
Not Shown	1	509484	Harness - PUH View Light
Not Shown	1	11771	Switch
Not Shown	1	11459	1/4" Insulated Female Back Terminal
Not Shown	1	11516	1/4" Insulated Female Spade Piggy Back Terminal
Not Shown	2	11604	Wire - Yellow 14 Ga.
Not Shown	1	13783	Switch Decal - PU Head Light

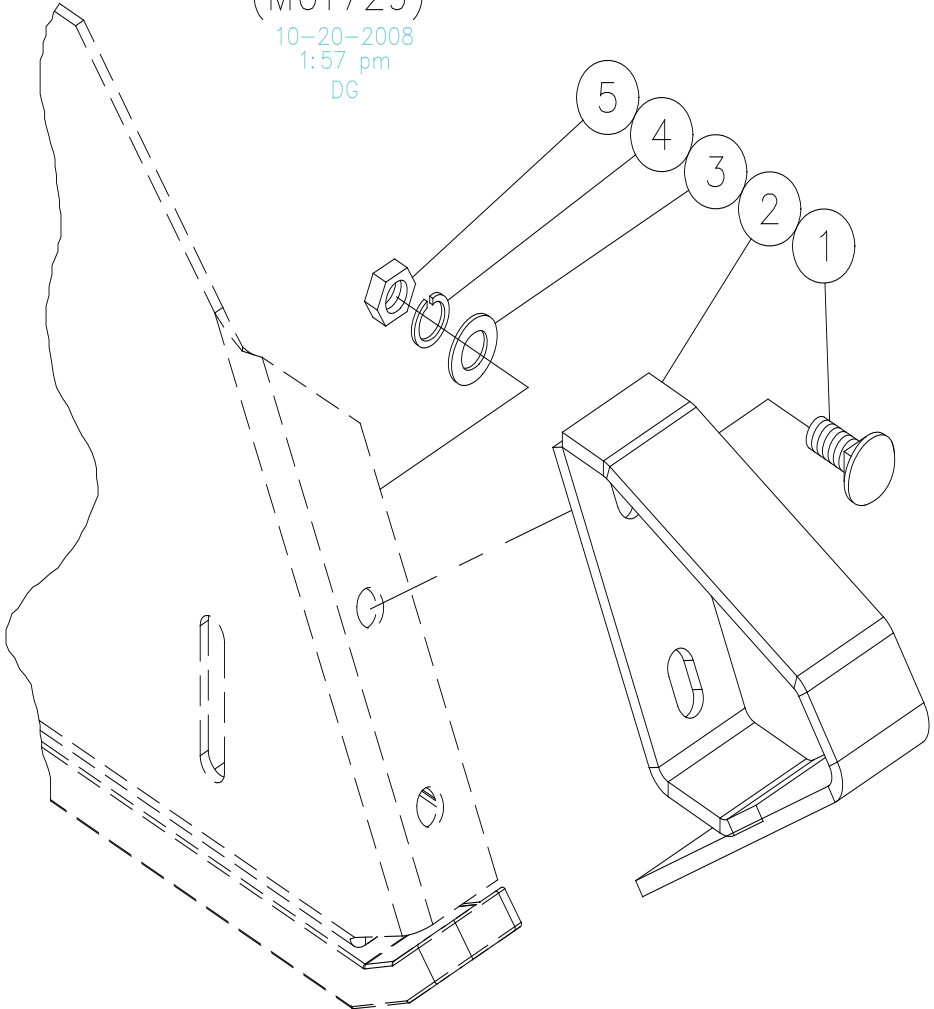
OPT 24





ALL MODELS
 SKID BUMPER EXTENSION SET ASSEMBLY
 (M01729)

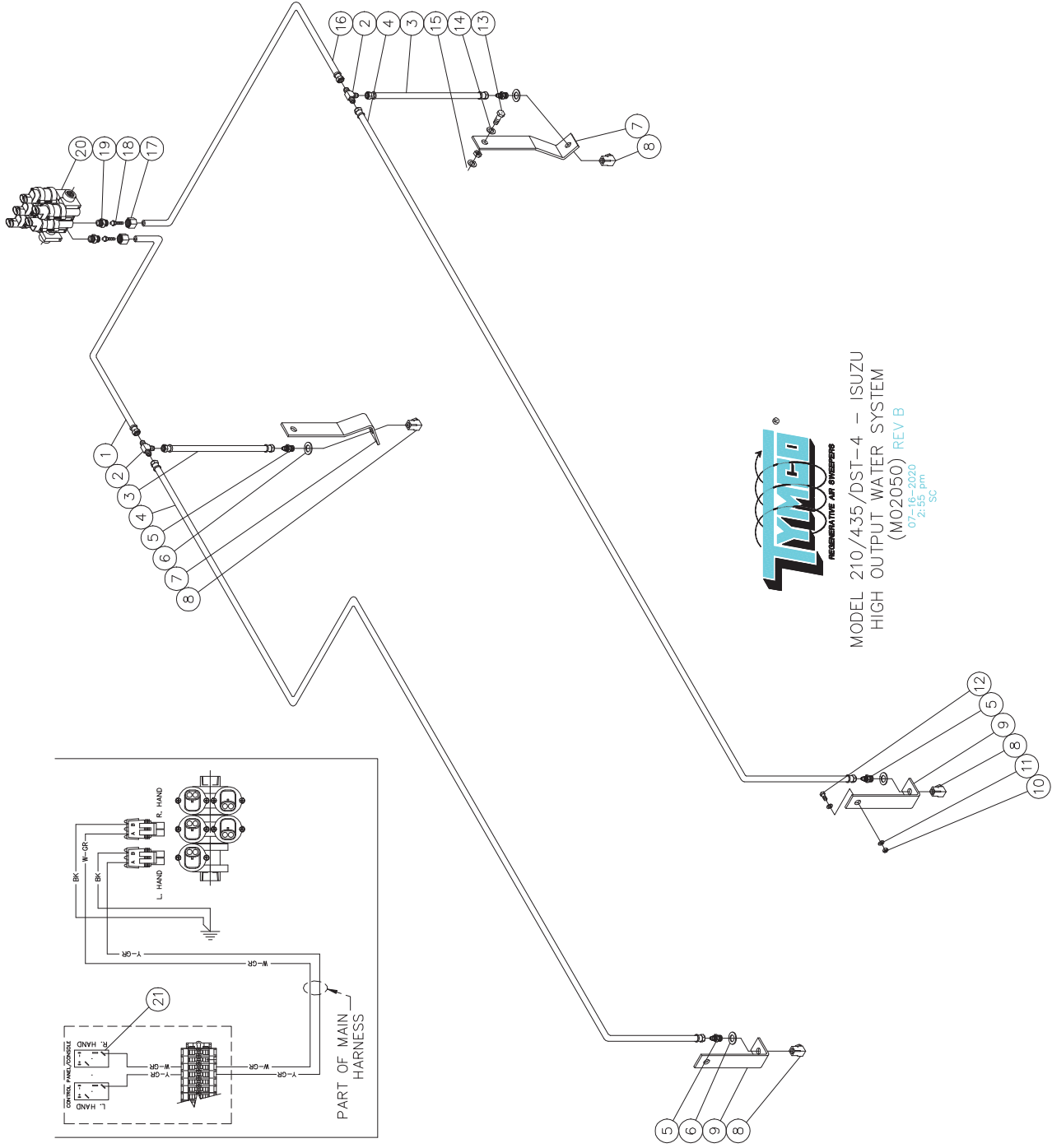
10-20-2008
 1:57 pm
 DG



**ALL TYMCO MODELS
 SKID BUMPER EXTENSION SET ASSEMBLY PARTS LIST
 DWG-M01729**

ITEM	QTY.	PART NO.	DESCRIPTION
	1	507157	Skid Bumper Extension Set Assembly
1	4	40103	Bolt - 1/2-13 x 1-1/2 CHCS
2	2	505026	Bumper Extension Weldment
3	4	10311	1/2" Flat Washer
4	4	10312	1/2" Lock Washer
5	4	10201	Nut - 1/2-13 Hex

OPT 27



OPT 27

**TYMCO MODEL 210/435/DST-4 - ISUZU
HIGH OUTPUT WATER SYSTEM
DWG-M02050**

ITEM	QTY.	PART NO.	DESCRIPTION
	1	507163	210/435/DST-4 High Output Water System - Isuzu
1	1	507578	Hose Assembly - 1/4 Water x 36" (Trim for 132.5" WB)
2	2	10816	Fitting - 1/4 SAE Tee
3	1	502183	Hose Assembly - 1/4 Water x 16"
4	2	500689	Hose Assembly - 1/4 Water 58" (132.5" WB)
-	2	507096	Hose Assembly - 1/4 Water 75" (150" WB)
5	4	20829	Fitting - 1/4 JIC - 1/4 MNPT Str.
6	4	10311	1/2 - Flat Washer
7	2	5020174	Rear Water Nozzle Bracket
8	4	20859	1/4 NPT Cone Nozzle - Brass
9	2	5010877	Front Water Nozzle Bracket
10	2	20234	Nut - 1/4-20 Nylon Lock
11	4	10303	1/4 - Flat Washer
12	2	10111	Bolt - 1/4-20 x 1.0 HHCS
13	1	10128	Bolt - 1/4-20 x 1.0 HHCS
14	3	10307	3/8 - Flat Washer
15	1	10275	Nut - 3/8-16 x 1.0 HHCS
16	1	505454	Hose Assembly - 1/4 Water x 80" (Trim for 132.5" WB)
17	2	30683	Fitting - 1/4 FPT Swivel Nut
18	2	30682	Fitting - 1/4 HB Insert
19	2	30681	Fitting - 1/4 NPT Close Nipple
20	1	506422	5-Station Water Manifold
21	2	503850	Switch - High Output, SPST
22	1	507164	Wire Harness - High Output

OPT 28

FRONT CURTAIN LIFTER

TABLE OF CONTENTS

OPTION 28	PAGE
Function	1
Operation	1
Guidelines.	2
Description	2
Suggestions for Set Up and Operation	3
Curtain Lifter Assembly Drawing	4
Curtain Lifter Assembly Parts List.	4
Curtain Lifter Wiring Diagram.	6
Valve Assembly	7
Hydraulic Cylinder Subassembly	8

FUNCTION

Under normal sweeping conditions, the Pick-Up Head front curtain is meant to seal the Pick-Up Head to the street or sweeping surface. When sweeping light debris, the front curtain can some times be too stiff to allow leaves to pass under it causing the leaves to pile up in front of the front curtain and Pick-Up Head. This is known as the “bulldozing” effect.

The purpose of the Curtain Lifter is to allow the front curtain of the Pick-Up Head to be lifted when sweeping light debris such as leaves, pine needles, grass, etc.

OPERATION

1. Carefully read section below for DST-4 Curtain Lift description of operation and guidelines before sweeping.
2. Turn on the DST Mode and Purge switches
3. Set the Pick-Up Head in the DOWN position.
4. Press the Curtain Lift toggle switch to the ON.
5. Set the Blower RPM at approximately 2000 to 2100 RPM.
6. Begin sweeping.
7. When finished sweeping light debris, press the Curtain Lift switch to the OFF position.

NOTE: The Curtain Lifter must be in the Off Position (to lower the front curtain of the Pick-Up Head) when sweeping dirt or heavy debris. The Curtain Lifter should always be returned to the Off Position after being used to prevent the front curtain from forming a bend.

OPT 28

DST-4 CURTAIN LIFT OPTION GUIDELINES



DESCRIPTION

Non-DST Model 435's allow unfiltered exhaust from the pickup head Pressure Bleeder feature to be used when the curtain lift is deployed. This is necessary to increase suction tube draft and prevent blow out from the exposed pickup head blast orifice. The combination of the curtain lift and an opened pressure bleeder results in the improved intake of large accumulations of light street debris.

Use of the DST-4 curtain lift option varies from the non-DST versions of the Model 435. The DST-4 pickup head uses no pressure bleeder feature, rather the DST system monitors and controls a continuous bleed of air from the sweeper regenerative system and then filters this air before exhausting it from the DST-4 box.

Lifting the DST-4 front curtains defeats the purpose of installing the dual front curtains and allows an in rush of air into the regenerative air system that over whelms the DST monitoring system. The system then tries to reduce the excess air flow by closing the DST flue plate. This would be like closing the non-DST Model 435 pressure bleeder with the front curtain lifted up resulting in debris being blown out of the front of the pickup head by the blast orifice.

DST-4's can be ordered with the optional Curtain Lift Feature but before curtain lift switch will function, **the DST Mode switch must be on** and the Filter purge system must be activated by the operator. When the curtain lift switch is used to lift the front PUH curtains the DST flue is automatically set to the full open position to provide maximum draw.

CONSOLE PANEL INSIDE CAB



OPT 28

This is accomplished by the DST VMM control module. The control module monitors the state of the curtain lift, DST Mode and Purge switches. If the curtain lift switch is turned on while the DST Mode or Purge switches are off a message will pop-up on the display reminding the operator to turn on the DST Mode and Purge System. Once the DST Mode and Purge system are on, the curtain will raise and the flue will go to the full open position. The flue open indicator light will illuminate to notify the operator of the flue open condition.

Always turn the Curtain Lift switch to the off position before shutting down the engine. This will allow the curtain to return to the down position.

SUGGESTIONS FOR DST-4 SWEEPER SET UP AND OPERATION FOR LIGHT DEBRIS

For light accumulations of light debris no special set up considerations are required. Deploying the curtain lift feature will normally be sufficient. Make sure the gutter broom contact pattern is throwing curb debris 8 to 10 inches inside the skid shoe to keep from bulldozing debris as curtain is lifted less on ends. RH side of PUH also uses a suction baffle curtain around the suction nozzle that prevents lifting of the front curtain by the curtain lift feature.

It is always a good idea to use new gutter broom bristles to sweep light debris as they provide farthest flick inside the PUH skid. The Variable Speed gutter broom option is useful to control the feed rate of debris into the PUH inlet.

For heavy accumulations of light debris, tilt the PUH up in front to enlarge the entry area and decrease the down pressure on the front curtains. Do this by lowering the front of the skids by using the rear fastening bolt as pivot. Make sure to tighten all skid plate bolts after adjusting. **Once leaf season is over return the PUH to its normal level position for best dustless operation.**

Running the sweeper aux engine at 2100 rpm will provide maximum suction draw for heavy accumulations however this can also cause screen to blind over quickly. Sweeping at the lowest engine rpm to get the job done will result in longer intervals before requiring screen to be cleaned.

Removing the DST-4 pre-cleaner will also improve suction draw by reducing exhaust back pressure. The pre-cleaner can be stowed in the access door area of the filter box when sweeping leaves. Be sure to install a plate to seal off the scavenge bin or it will fill with light debris such as leaves paper or trash due to pre-cleaner being removed.

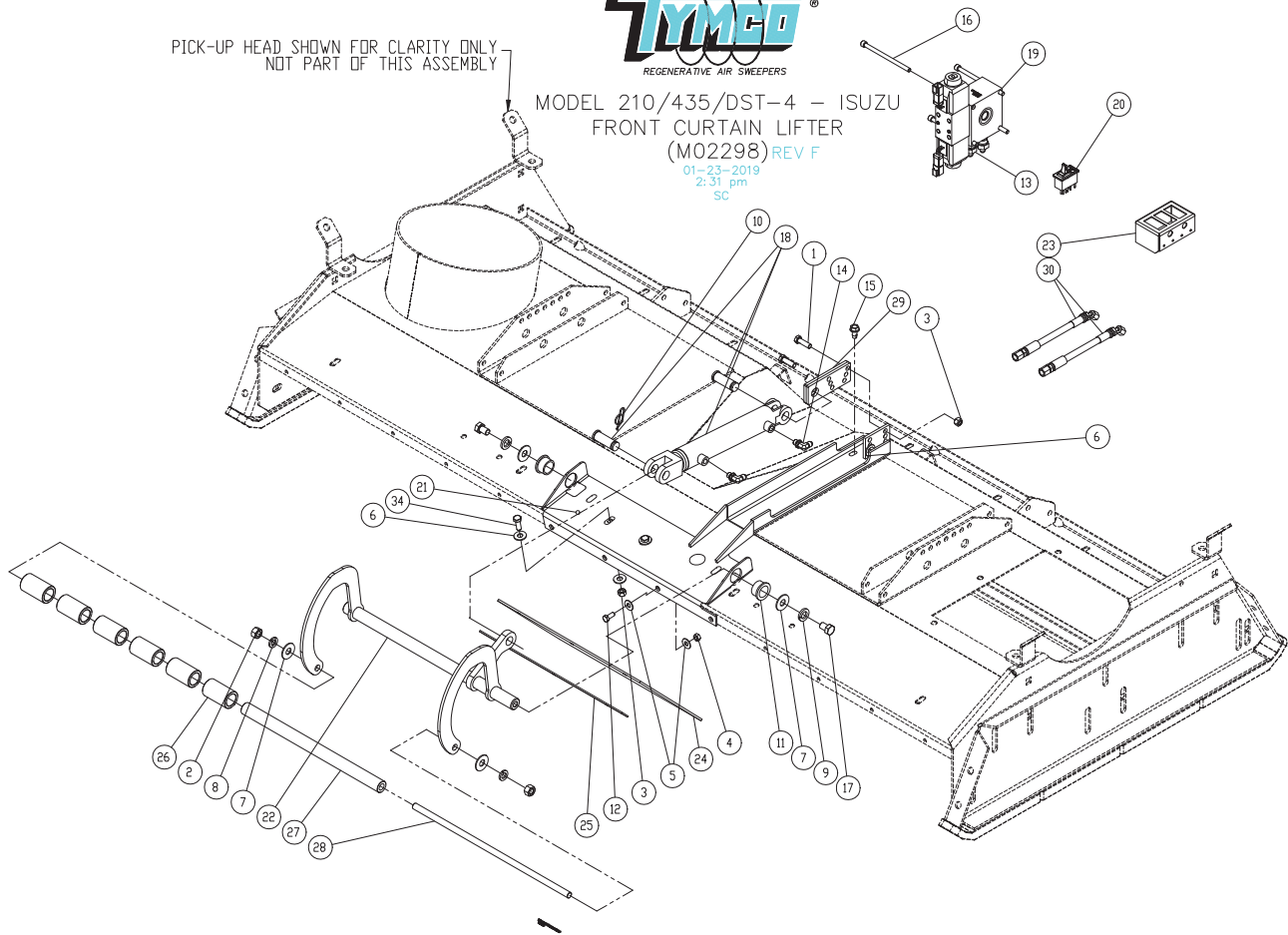
Using filters with lowest pressure drop possible or even new filters will also reduce back pressure and improve suction draw. Always use purge system when curtain lift is deployed in order to provide clean filters with lowest pressure drop when sweeping. Restricted filters will reduce suction draw and cause more exhaust from blast orifice blowing debris from the PUH inlet.

OPT 28



PICK-UP HEAD SHOWN FOR CLARITY ONLY
NOT PART OF THIS ASSEMBLY

MODEL 210/435/DST-4 - ISUZU
FRONT CURTAIN LIFTER
(M02298) REV F
01-23-2019
2:31 pm
SC



TYMCO MODEL 210/435/DST-4 - ISUZU PICK-UP HEAD CURTAIN LIFTER DWG-M02298

ITEM	QTY.	PART NO.	DESCRIPTION
	1	507655	Pick-Up Head Curtain Lifter Assembly - Isuzu
1	2	10129	Bolt - 3/8-16 UNC x 1 1/4
2	2	10201	Nut - 1/2 UNC
3	2	10225	Lock Nut - 3/8 UNC
4	1	10229	Lock Nut - 5/16 UNC
5	2	10305	Flat Washer - 5/16
6	1	10307	Flat Washer - 3/8
7	4	10311	Flat Washer - 1/2
8	2	10312	Lock Washer - 1/2
9	2	10314	Lock Washer - 5/8
10	1	10434	Rue Clip 3/4
11	2	11021	Flange Bushing
12	1	20112	Bolt - 5/16-18 UNC x 3/4
13	2	20740	Fitting - 1/2 ORB x 1/4 JIC
14	2	20782	Fitting - 1/4 ORB x 1/4 JIC, 90°
15	1	30128	Bolt - 3/8 3/4 Self Tap
16	4	30196	5/16-18 x 5 Socket Head Cap Screw
17	2	40125	Bolt - 1/2-13 UNC x 3/4 G5
18	1	503313	1 1/2" x 6" Stroke Cylinder-Side Port
19	1	504721	Add-On Valve Section

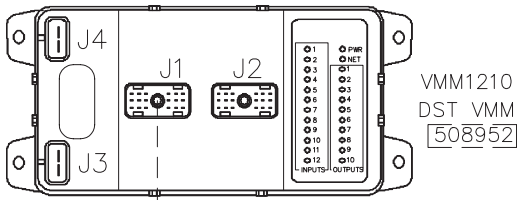
OPT 28

ITEM	QTY.	PART NO.	DESCRIPTION
20	1	507217	SPDT Eaton Switch M-N-M
21	1	507840	Curtain Lift Weldment - 210/435
22	1	508409	Finger Lift Weldment - Isuzu
23*	1	5019547	Paddle Switch Bracket
24	1	5019632	Roller Curtain
25**	1	5020577	Clamp - Roller Curtain
26	6	5021268	Roller
27	1	5021377	Roller Tube
28	1	5021378	1/2-13 UNC x 17 1/2
29	2	5021584	Cylinder Mount
30	2	500078	Hose Assembly - 210
-	2	506605	Hose Assembly - 435/DST-4
31	-	-	-
32	-	-	-
33	-	-	-
34	2	10128	Bolt - 3/8-16 UNC x 1
Not Shown	1	507406	Wire Harness - 210
Not Shown	1	507218	Wire Harness - 435/DST-4
Not Shown	1	503014	Check Valve

* Item only required if no switch positions remain on control console panel.

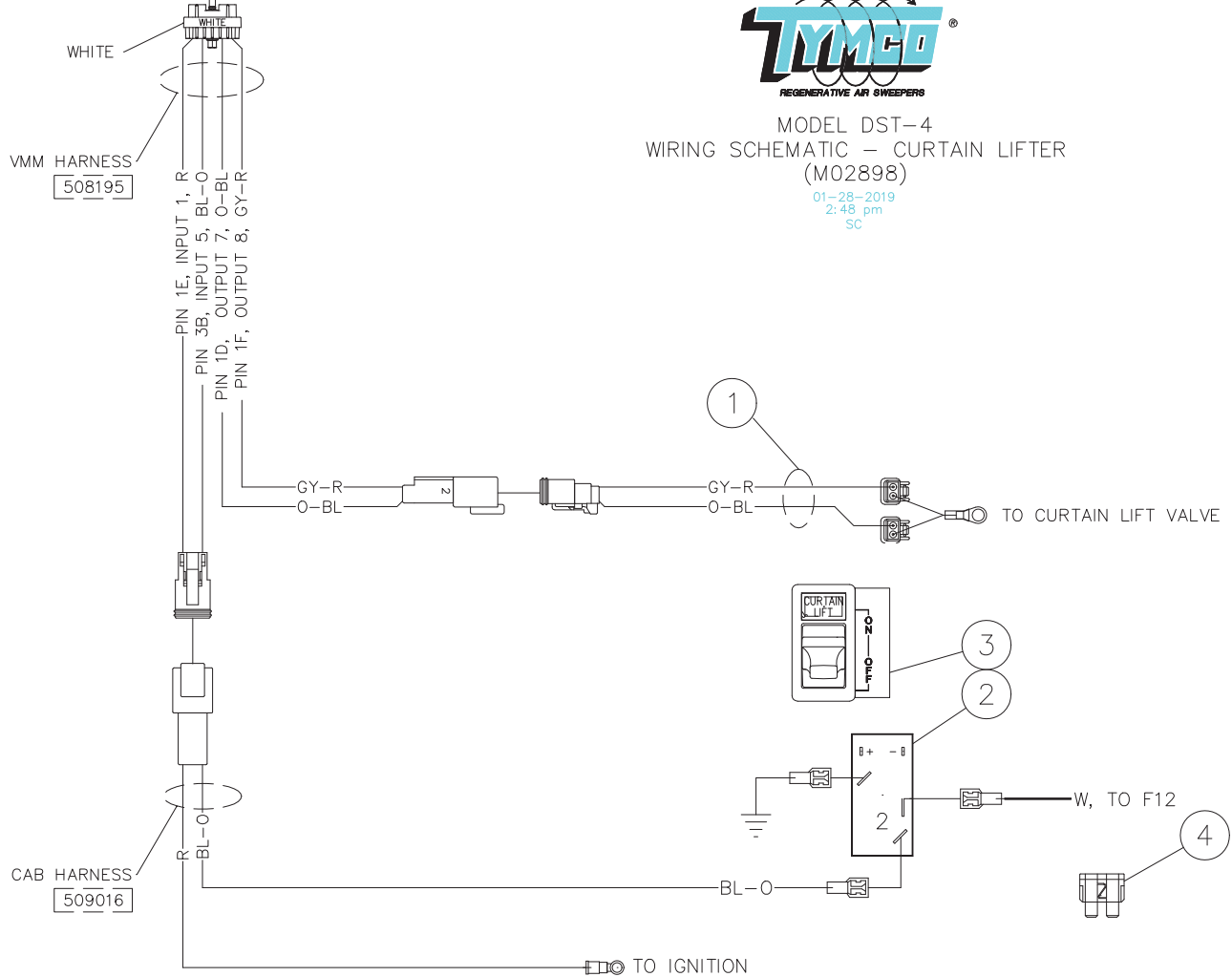
** Item only required for removable front curtain set option.

OPT 28



MODEL DST-4
WIRING SCHEMATIC - CURTAIN LIFTER
(M02898)

01-28-2019
2:48 pm
SC

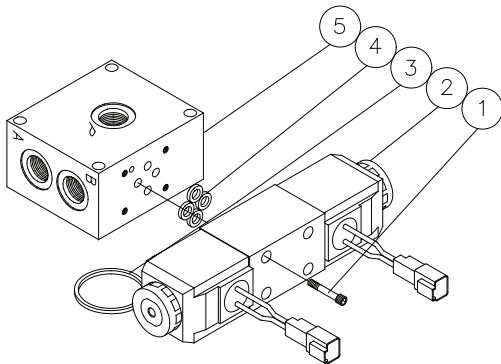


**TYMCO MODEL DST-4
WIRING SCHEMATIC - CURTAIN LIFTER ASSEMBLY PARTS LIST
DWG-M02898**

ITEM	QTY	PART NO	DESCRIPTION
	1	509194	Wiring Schematic - Curtain Lifter - DST-4
1	1	507517	Curtain Lifter Harness
2	1	507415	Curtain Lift Switch (On/Off)
3	1	506745	Flue Open Light
4	1	11810	Fuse - 3A ATO



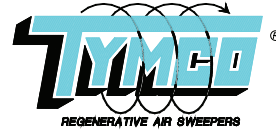
MODEL 210/435/DST-4
VICKERS ADD-ON VALVE
SUCTION W/DEUTSCH
(M02083)
01-14-2010
11:05 am
DG



**TYMCO MODEL 210/435/DST-4
VICKERS ADD-ON VALVE SECTION W/DEUTSCH
DWG-M02083**

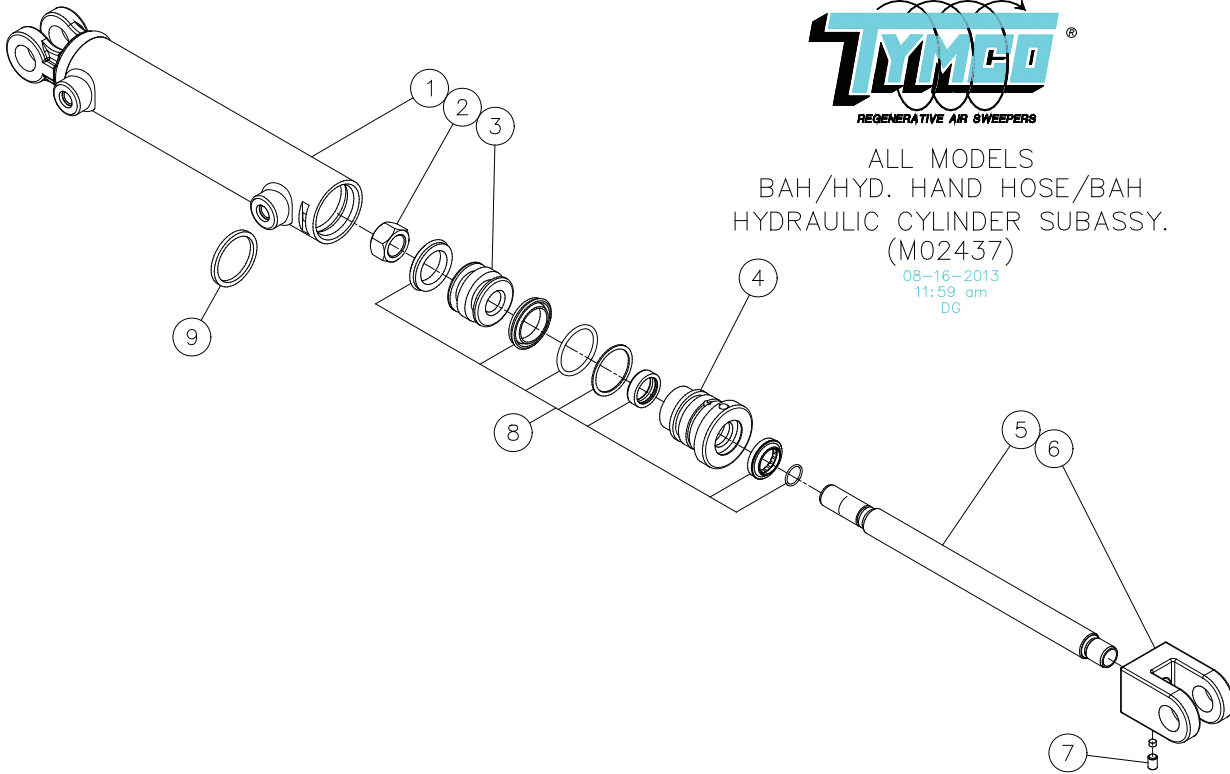
ITEM	QTY.	PART NO.	DESCRIPTION
	1	504721	Vickers Add-On Valve Section w/Deutsch
1	4	12498	Valve Bolts
2	1	504622	Four-Way Series Valve Assembly (Deutsch)
3	1	12563	O-Ring
4	1	12489	(4) Valve Port O-Rings
5	1	503312	Add-on Valve Section Manifold Assembly

OPT 28



ALL MODELS
BAH/HYD. HAND HOSE/BAH
HYDRAULIC CYLINDER SUBASSY.
(M02437)

08-16-2013
11:59 am
DG



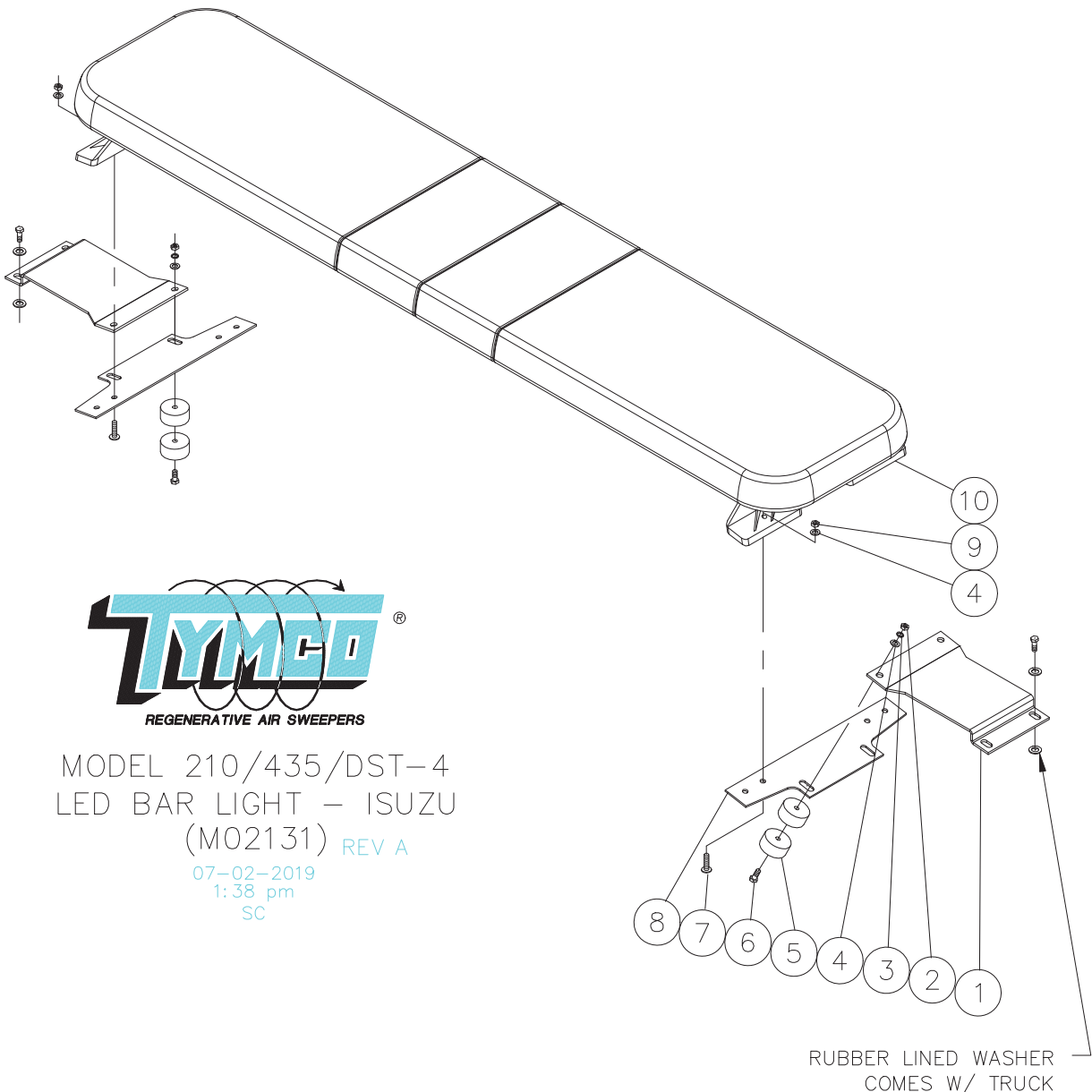
**ALL TYMCO MODELS
FRONT CURTAIN LIFT/HYDRAULIC AUXILIARY HAND HOSE/BAH
HYDRAULIC CYLINDER SUBASSEMBLY
DWG-M02437**

ITEM	QTY.	PART NO.	DESCRIPTION
	1	503313	Front Curtain Lift/Hyd. Hand Hose/BAH
1	1	-	Tube Assembly
2	1	12204	Lock Nut
3	1	12205	Piston
4	1	12207	Head
5	1	-	Rod
6	1	12362	Clevis
7	1	-	Set Screw
8	1	5012771	Seal Kit
9	1	12203	Ring Retainer

NOTE: TYMCO DOES NOT STOCK ANY BASE PARTS. (Seal Kits Only)

Refer to Hydraulic Section for Hydraulic Cylinder Disassembly/Reassembly

OPT 31

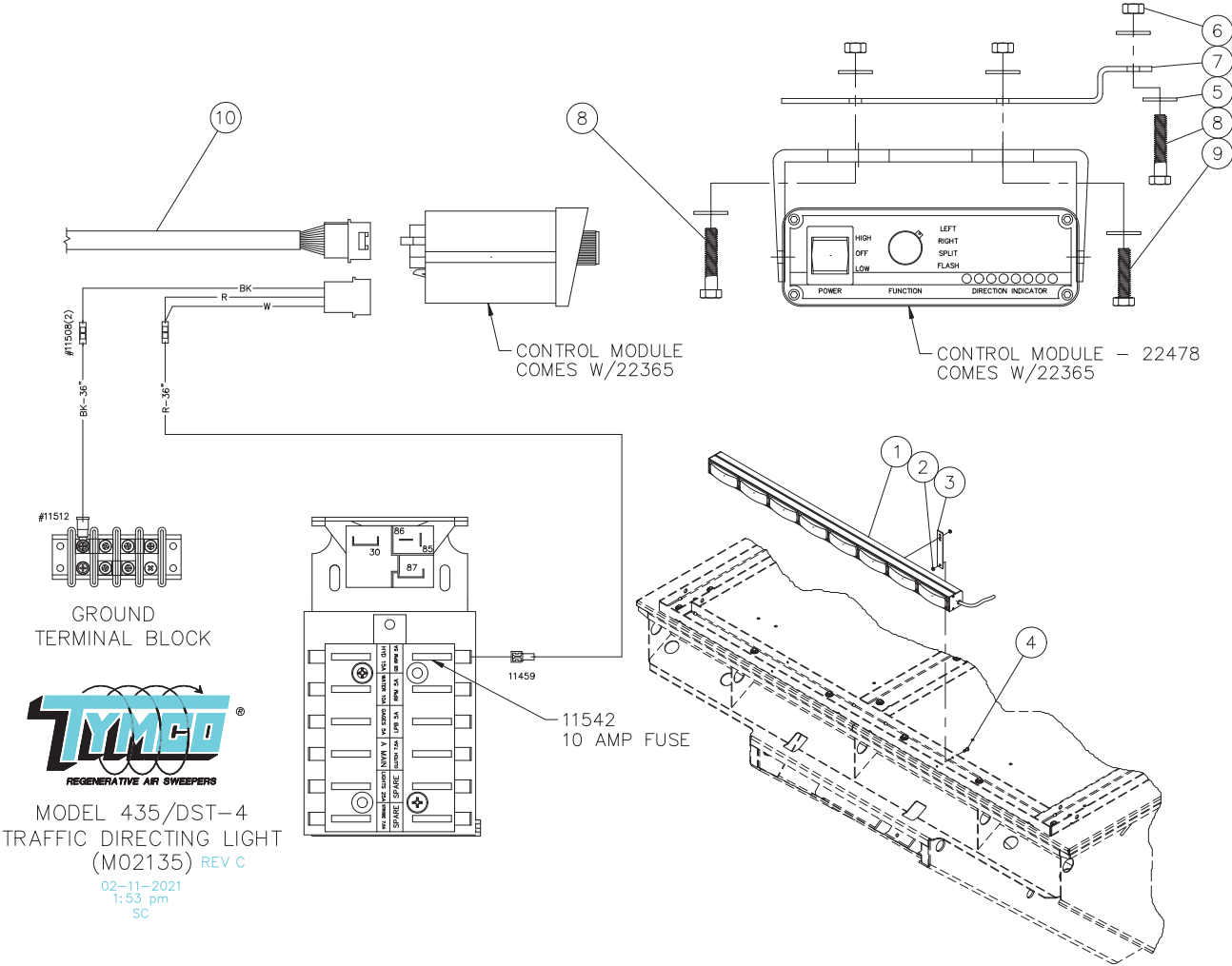


MODEL 210/435/DST-4
 LED BAR LIGHT – ISUZU
 (M02131) REV A
 07-02-2019
 1:38 pm
 SC

**TYMCO MODEL 210/435/DST-4 - ISUZU
 LED BAR LIGHT ASSEMBLY - CAB MOUNTED PARTS LIST
 DWG-M02131**

ITEM	QTY	PART NO	DESCRIPTION
	1	507442	LED Bar Light Assembly - Isuzu
1	2	5019836	Bracket - Bar Light - Isuzu (210/435)
2	4	10247	Nut - 1/4-20 Hex SS
3	4	10331	1/4 - Lock Washer SS
4	8	10335	1/4 - Flat Washer SS
5	8	10589	Isolator
6	4	40185	Bolt - 1/4-20 x 1.5 HHCS SS
7	4	40135	Screw - 1/4-20 x 1 Phillips Truss
8	2	5020423	Adapter Bracket
9	4	20204	Nut - 1/4-20 Nylon SS
10	1	22469	LED Bar Light

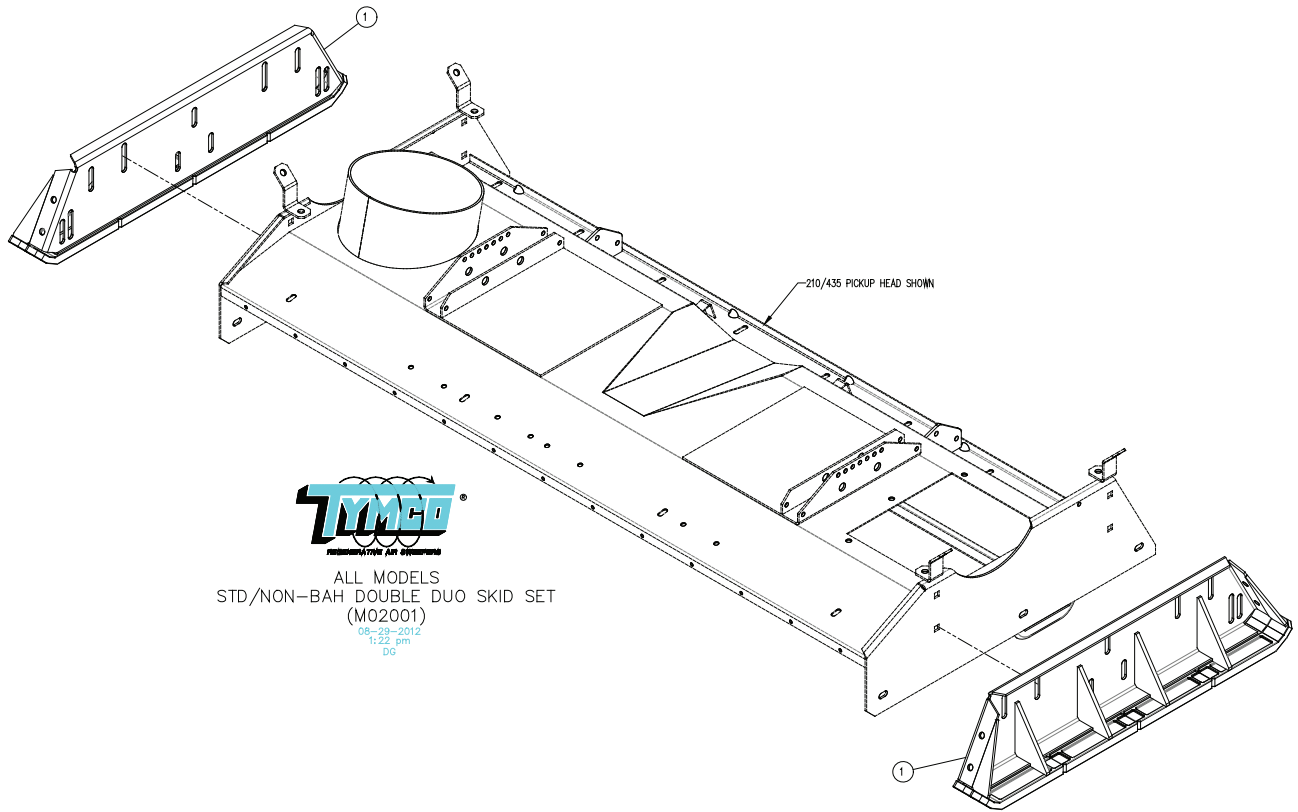
OPT 32



MODEL 435/DST-4
 TRAFFIC DIRECTING LIGHT
 (M02135) REV C
 02-11-2021
 1:53 pm
 SC

TYMCO MODEL 435/DST-4 TRAFFIC DIRECTING LIGHT ASSEMBLY PARTS LIST DWG-M02135

ITEM	QTY	PART NO	DESCRIPTION
	1	507475	Traffic Directing Light Assembly
1	1	22365	LED Traffic Advisor Arrow Stick Light - 8 Lamps
2	2	10246	Nut - 1/4-20 Top Lock
3	2	5021220	Mount Tab
4	2	10110	Bolt - 1/4-20 x 3/4 HHCS
5	6	10303	1/4 - Flat Washer
6	3	10274	Nut - 1/4-20 Kept
7	1	5020018	Mount Bracket - Module
8	2	10115	Bolt - 1/4-20 x 1 1/4 HHCS
9	1	10111	Bolt - 1/4-20 x 1 HHCS
10	1	22343	15' Cable Extension



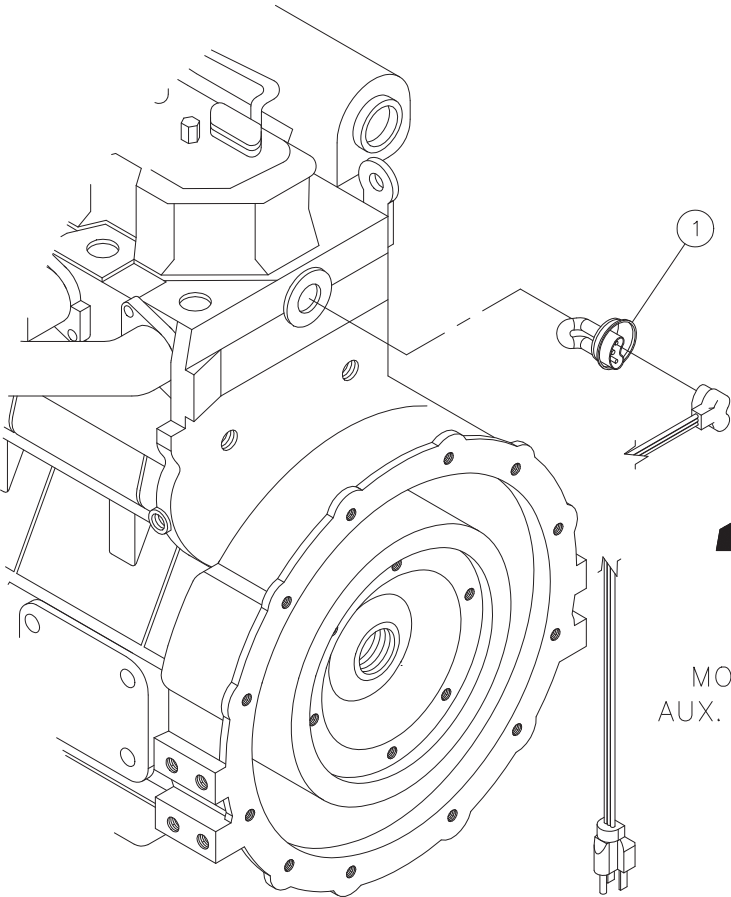

 ALL MODELS
 STD/NON-BAH DOUBLE DUO SKID SET
 (M02001)
08-29-2012
 11:26 pm
 DC

**ALL TYMCO MODELS
 STANDARD/NON-BAH DOUBLE DUO SKID SET
 DWG-M02001**

ITEM	QTY.	PART NO.	DESCRIPTION
1	1	507784	Standard/Non-BAH Double Duo Skid Set
	2	504503	Standard/Non-BAH Double Duo Skid

NOTE: Pick-up head shown for clarity.

OPT 36



MODEL 210/435/DST-4
AUX. ENGINE BLOCK HEATER
(M02581)

04-30-2015
2:04 pm
SC

**TYMCO MODEL 210/435/DST-4
AUXILIARY ENGINE BLOCK HEATER
DWG-M01939**

ITEM	QTY	PART NO	DESCRIPTION
1	1	13234	Engine Block Heater - Kubota

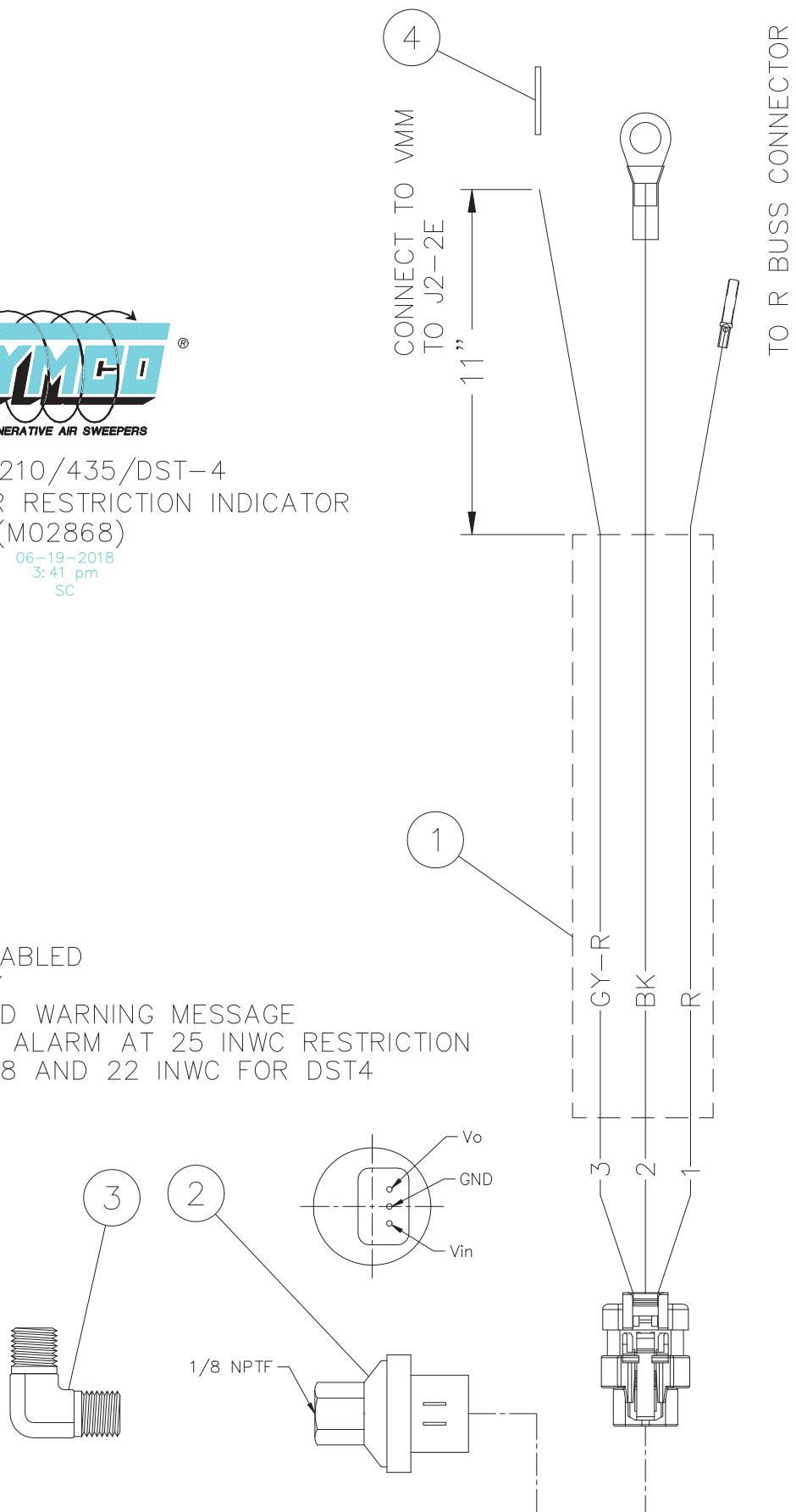
OPT 42



MODEL 210/435/DST-4
 AUX. ENGINE AIR RESTRICTION INDICATOR
 (M02868)

06-19-2018
 3:41 pm
 SC

NOTES:
 OPTION MUST BE ENABLED
 IN THE MD4 DISPLAY
 INCLUDES GAUGE AND WARNING MESSAGE
 AT 20 AND AUDIBLE ALARM AT 25 INWC RESTRICTION
 FOR 210/435 AND 18 AND 22 INWC FOR DST4



OPT 42

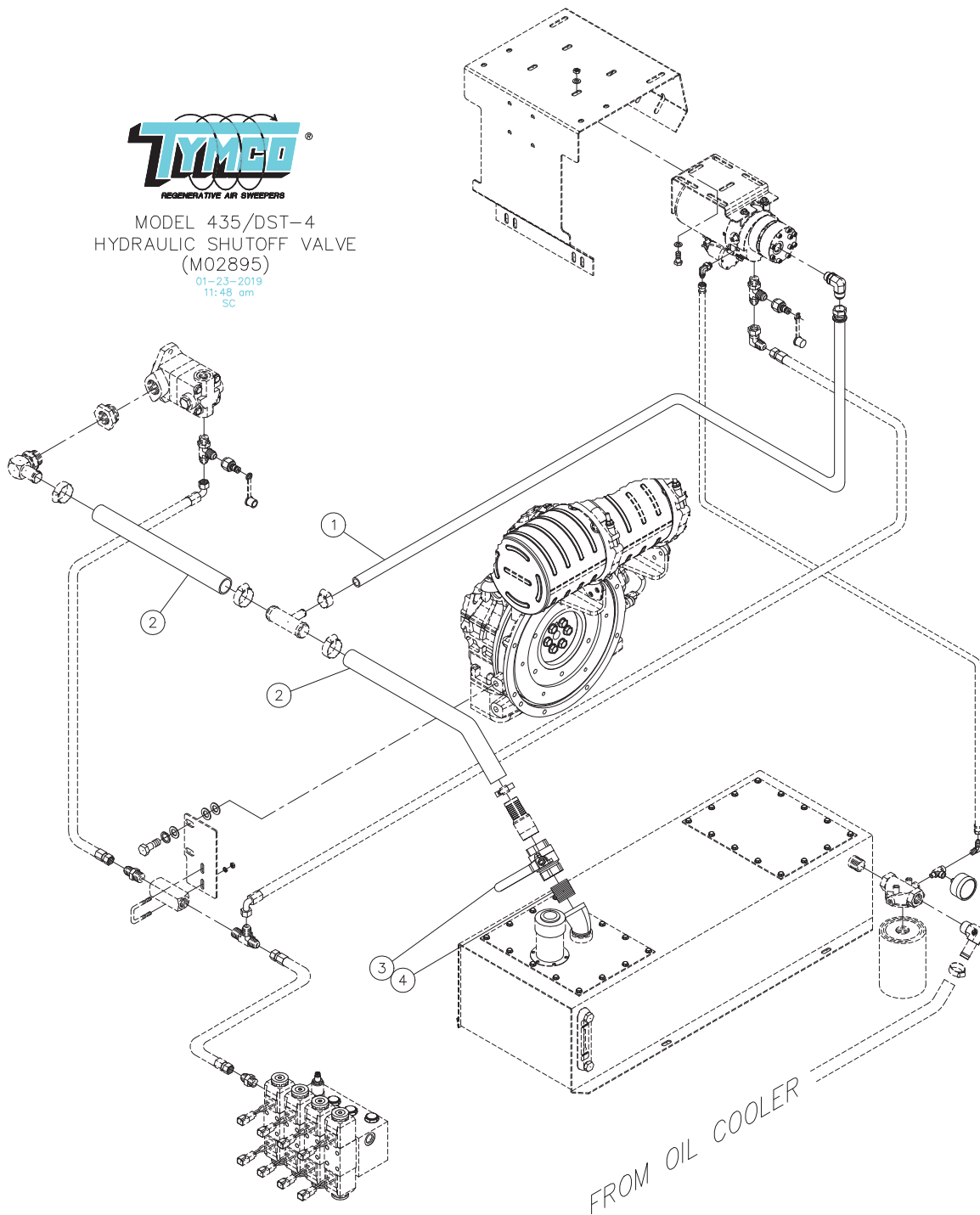
**TYMCO MODEL 210/435/DST-4
AUXILIARY ENGINE AIR RESTRICTION INDICATOR
DWG-M02868**

ITEM	QTY	PART NO	DESCRIPTION
	1	508964	Auxiliary Engine Air Restriction Indicator - FT4
1	1	508357	Harness - Air Filter Restriction Indicator
2	1	21858	Filter Restriction Sensor
3	1	10735	Fitting - 1/8 MPT 90°
4	1	21507	MP150 Female Terminal



MODEL 435/DST-4
HYDRAULIC SHUTOFF VALVE
(M02895)

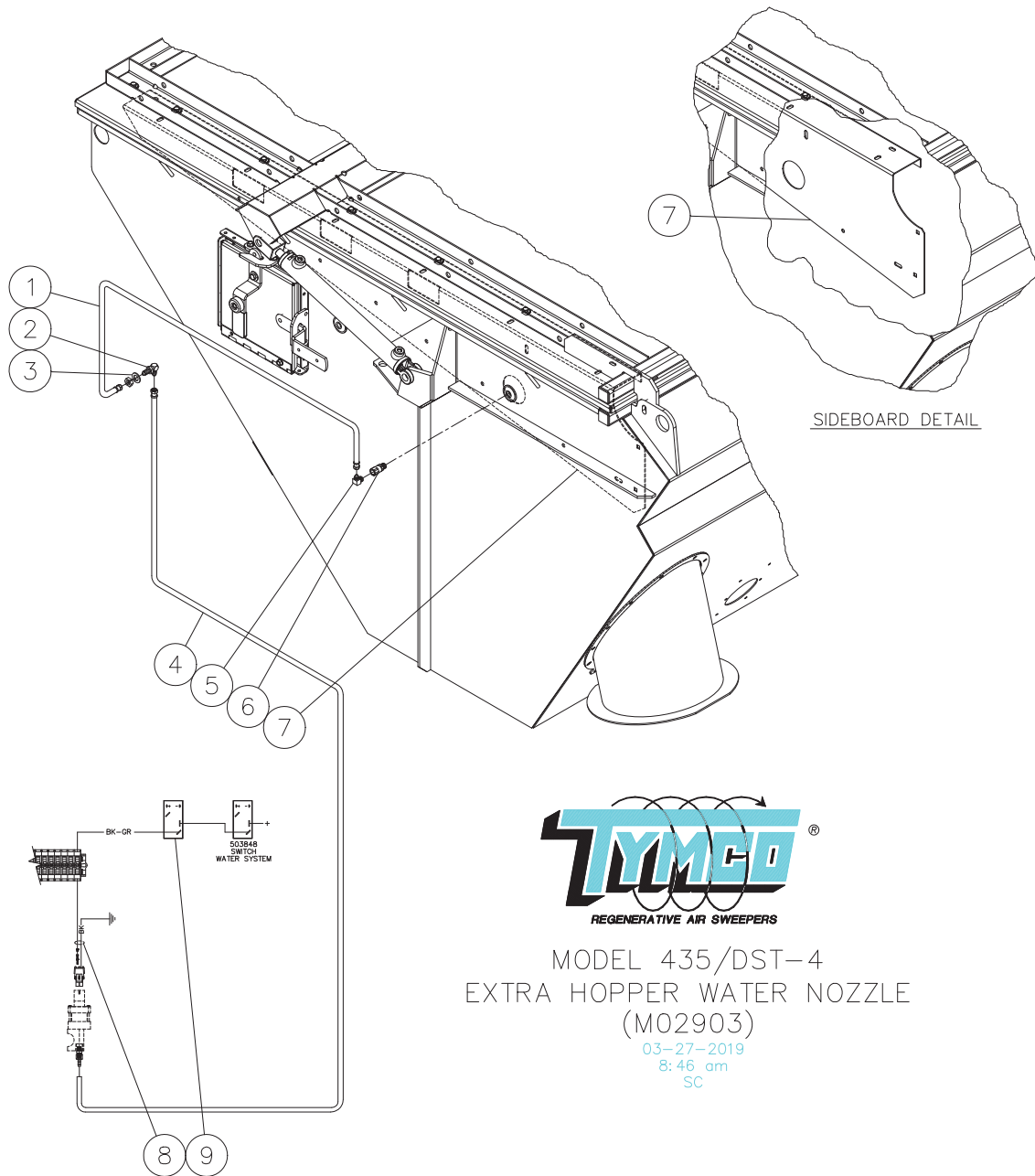
01-23-2019
11:48 am
SC



**TYMCO MODEL 435/DST-4
HYD. TANK LOCKABLE BALL VALVE SHUTOFF SUCTION HOSE
DWG-M02895**

ITEM	QTY.	PART NO.	DESCRIPTION
	1	509186	Hydraulic Tank Shutoff Valve - FT4
1	1	508899	Hose Assembly - 5/8 Hydraulic x 35"
2	1	5021285	Hose - 1-1/4 Suction x 30"
3	1	22285	1.25 NPT Bronze Ball Valve
4	1	10678	Fitting - 1-1/4 NPT Close Nipple Galv.

OPT 44



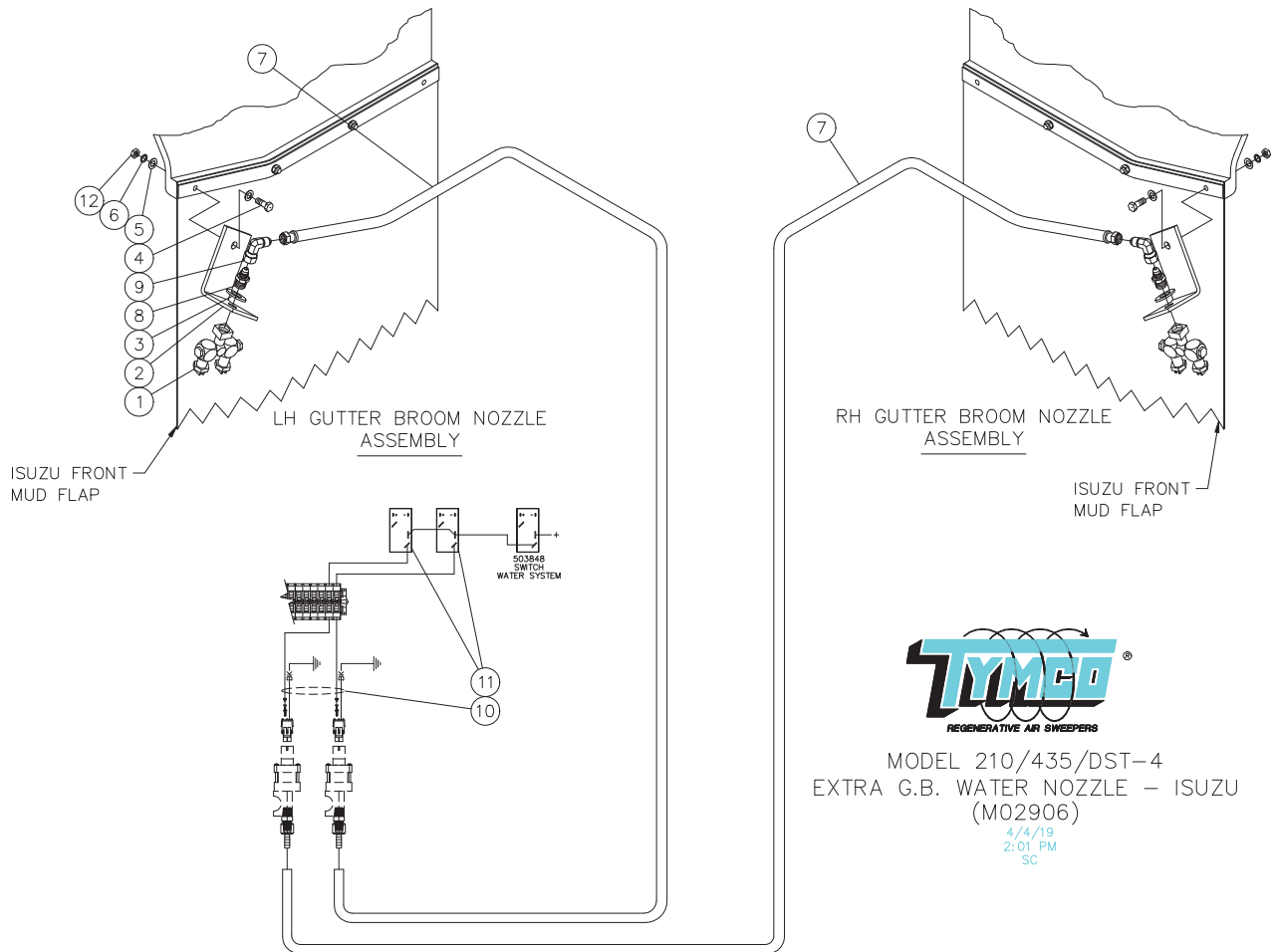
MODEL 435/DST-4
EXTRA HOPPER WATER NOZZLE
(M02903)

03-27-2019
8:46 am
SC

TYMCO MODEL 435/DST-4 EXTRA HOPPER WATER NOZZLE DWG-M02903

ITEM	QTY.	PART NO.	DESCRIPTION
	1	509208	Extra Hopper Water Nozzle
1	1	505453	Hose Assembly - 1/4 Water x 108"
2	1	10751	Fitting - 1/4 JIC 90° Bulkhead
3	1	10311	1/2 - Flat Washer
4	1	505855	Hose Assembly - 1/4 Water x 168"
5	1	10818	Fitting - 1/4 NPT - 1/4 JIC 90°
6	1	30826	Fitting - Hopper Nozzle, Wall Mount - 1/4 NPT
7	1	5022046	Sideboard (RH) w/Nozzle Clearance - Screen
8	1	509209	Wire Harness
9	1	509042	Switch - Extra Hopper Water

OPT 44



**TYMCO MODEL 210/435/DST-4
EXTRA GUTTER BROOM WATER NOZZLE - ISUZU
DWG-M02906**

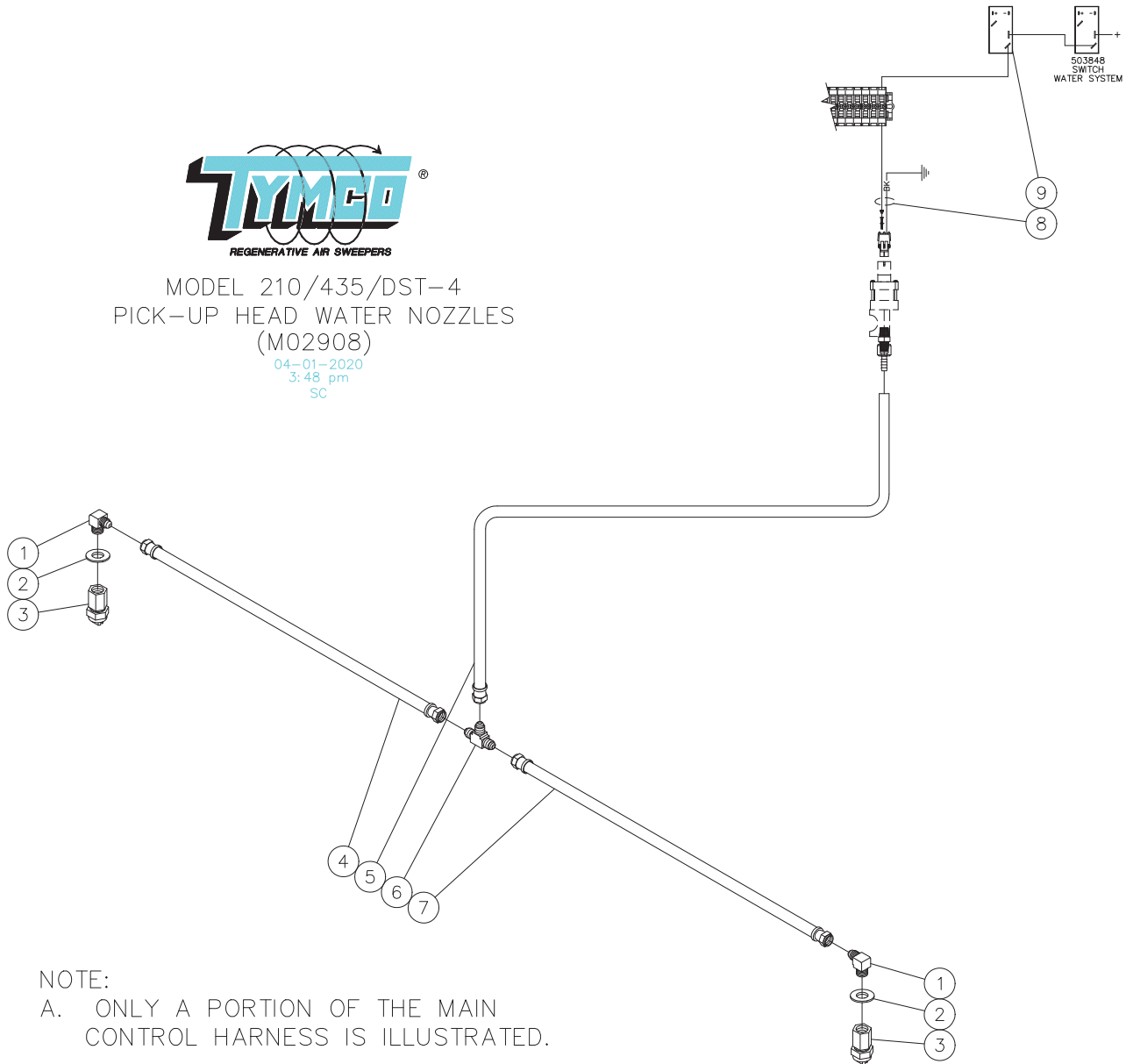
ITEM	QTY.	PART NO.	DESCRIPTION
	1	509215	Extra Gutter Broom Water Nozzle - 132" WB Isuzu
	1	509216	Extra Gutter Broom Water Nozzle - 150" WB Isuzu
1	1	20810	Duo Swivel Fan Nozzle w/11003 Tip
2	1	5012672	Mount - Gutter Broom Nozzle
3	1	10311	1/2 - Flat Washer
4	1	10111	Bolt - 1/4-20 x 1.0 HHCS
5	2	10303	1/4 - Flat Washer
6	1	10304	1/4 - Lock Washer
7	1	800811	LH Hose Assembly - 1/4 Push On x 132" - 132" WB
-	1	507726	LH Hose Assembly - 1/4 Push On x 176" - 150" WB
-	1	505781	RH Hose Assembly - 1/4 Push On x 112" - 132" WB
-	1	509225	RH Hose Assembly - 1/4 Push On x 138" - 150" WB
8	1	20829	Fitting - 1/4 JIC - 1/4 NPT Str.
9	1	30875	Fitting - 1/4 SAE x 1/4 Swv. x 90°
10	(Shown for Clarity)	-	Wire Harness - Main Control
11	1	509221	Switch - Extra Water
12	1	10203	Nut - 1/4-20 Hex

OPT 44



MODEL 210/435/DST-4
PICK-UP HEAD WATER NOZZLES
(M02908)

04-01-2020
3:48 pm
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NOTE:
A. ONLY A PORTION OF THE MAIN CONTROL HARNESS IS ILLUSTRATED.

**TYMCO MODEL 210/435/DST-4
PICK-UP HEAD WATER NOZZLES
DWG-M02908**

ITEM	QTY.	PART NO.	DESCRIPTION
	1	509222	Pick-Up Head Water Nozzles
1	2	10818	Fitting - 1/4 JIC-1/4 MPT 90°
2	2	10311	1/2 - Flat Washer
3	2	10857	1/4T Spray Nozzle w/800050 Tip
4	1	501339	Hose Assembly - 1/4 Water x 25"
5	1	505450	Hose Assembly - 1/4 Water x 68"
6	1	10816	Fitting - 1/4 SAE Male Tee
7	1	500689	Hose Assembly - 1/4 Water x 58"
8 (Shown for Clarity)	-	-	Wire Harness - Main Control
9	1	503851	Switch - Head Water (SPST)

OPT 45

AUTOMATED WATER SYSTEM

Function: The Automated Water System option will ensure the operator is using the dust suppression water system. Using hopper water improves dust separation in the regenerative air system and reduces airborne dust. Hopper water also reduces abrasive wear in the sweeper. The Automated Water System option will automatically turn on the water system when the pick-up head is lowered and the engine speed is raised above idle, regardless of the state of the main water system switch. When the water tanks are empty, the system will interrupt sweeping by forcing the engine to idle and, if equipped, engaging Auto Sweep Interrupt (ASI). The interrupt function is selectable using the user PIN code. The Automated Water System option also has the effect of conserving water by automatically pausing the water system when the engine is at idle or the pick-up head is raised. The main water switch still functions as normal. Use the main water system switch to operate the water system with the engine at idle. Make sure to turn the switch off before sweeping to benefit from the auto pause feature.

Hopper water is always active with this option. The hopper water switch is removed and the hopper water sprays any time the water pump is on.

System Features: When equipped with Automated Water System, the water system icon will illuminate amber when in standby. Once the pick-up head is lowered and the engine is raised above idle, the water pump will come on and the water system icon will turn green.



Water Standby
(Yellow)

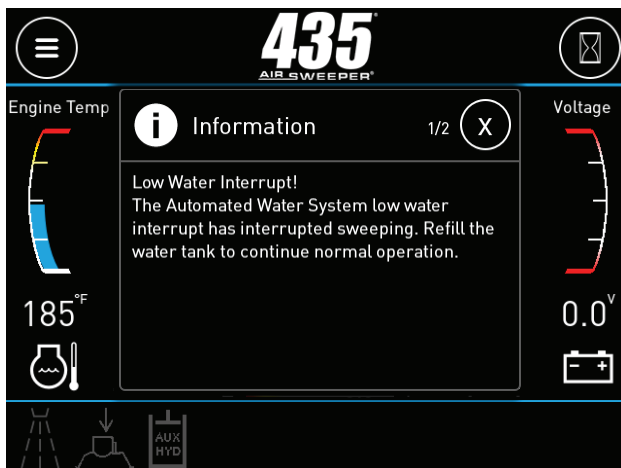


Water On
(Green)

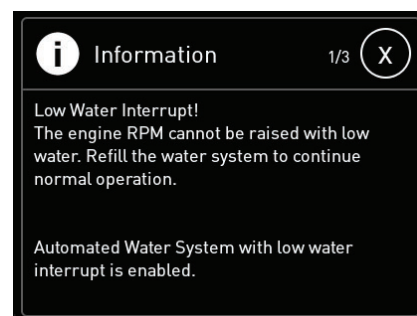
If the water tank is empty, the low water icon will illuminate. If this occurs while sweeping, the engine will be forced to idle and a message will appear to instruct the operator to refill the water system. If the sweeper is equipped with ASI and the ASI system is in Auto Mode, the ASI will activate and raise the sweeping gear.



Low Water

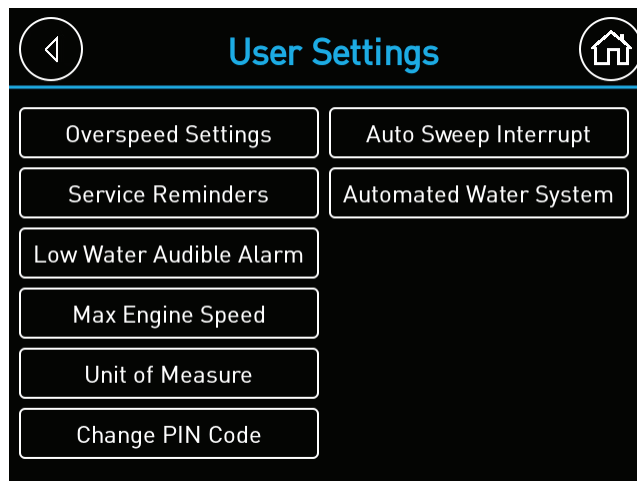


If the low water interrupt feature is active and the water tank is empty, the engine RPM cannot be raised. If the engine RPM increase switch is pressed, a message will appear to inform the operator of the interlock.



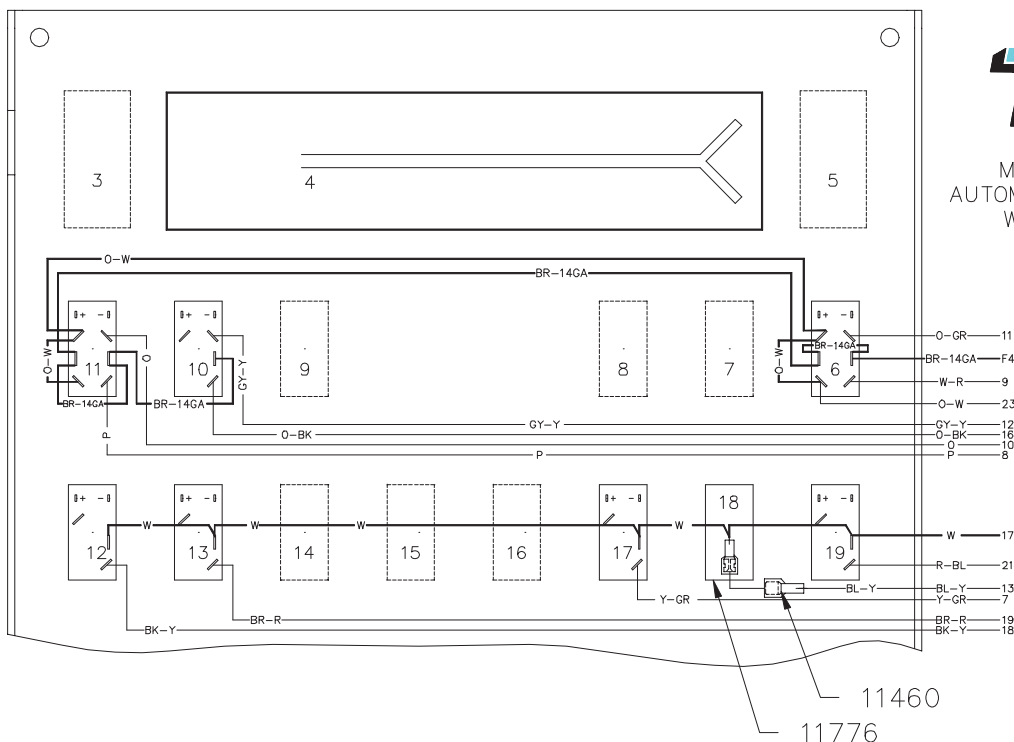
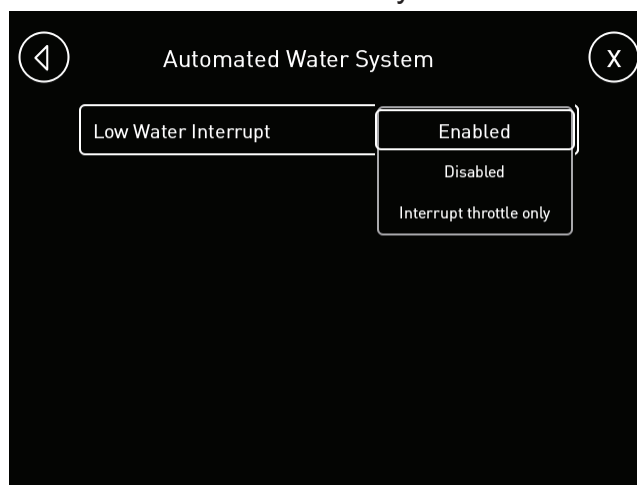
OPT 45

The Automated Water System low water interrupt feature can be configured using the User Settings. Go to the page selector and select User Settings. Enter the User PIN code provided in the Control System section of the parts and service manual.



Select "Automated Water System".

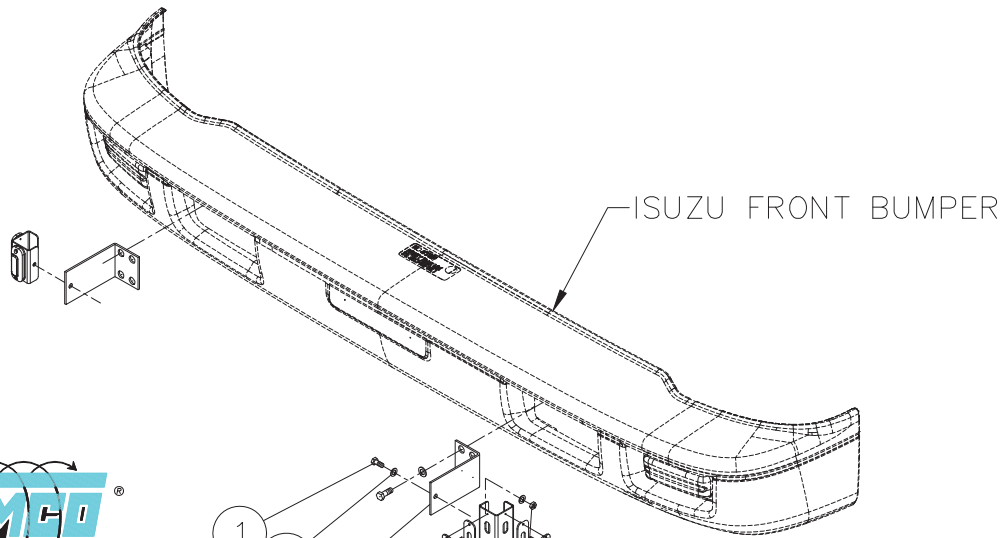
Low Water Interrupt can be set to Enabled, Disabled, or Interrupt Throttle Only. If Enabled is selected, low water will force the engine to idle and, if equipped, engage Auto Sweep Interrupt (ASI). If Disabled is selected, sweeping functions will continue as normal when the water tank is empty. Selecting Interrupt Throttle Only will force the engine to idle, but will not trigger ASI for ASI equipped sweepers.



MODEL 600/DST-6
AUTOMATED WATER SYSTEM
WIRING SCHEMATIC
(M02783)

05-08-2017
9:56 am
SC

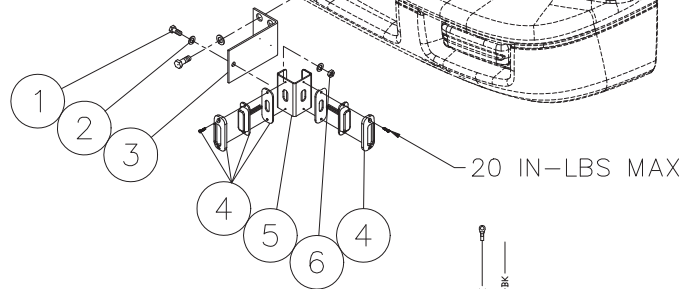
OPT 46



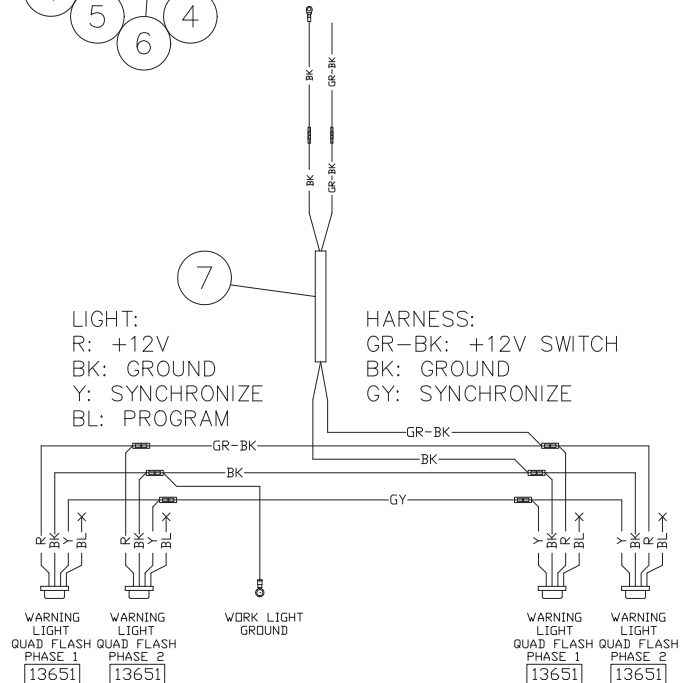
MODEL 210/435/DST-4 ISUZU
FRONT LED WARNING LIGHTS

(M02136) REV A

07-28-2020
2:52 pm
SC



- LIGHTS MUST BE PROGRAMMED AFTER INSTALLATION
1. TOUCH BLUE WIRE TO GROUND 9 TIMES FOR QUAD FLASH PHASE 1
 2. TOUCH BLUE WIRE TO GROUND 10 TIMES FOR QUAD FLASH PHASE 2
 3. BLUNT CUT AND TAPE BLUE WIRES AFTER PROGRAMMING IS COMPLETE
 4. SEE PRODUCT INSERT FOR ADDITIONAL PROGRAMMING INSTRUCTIONS



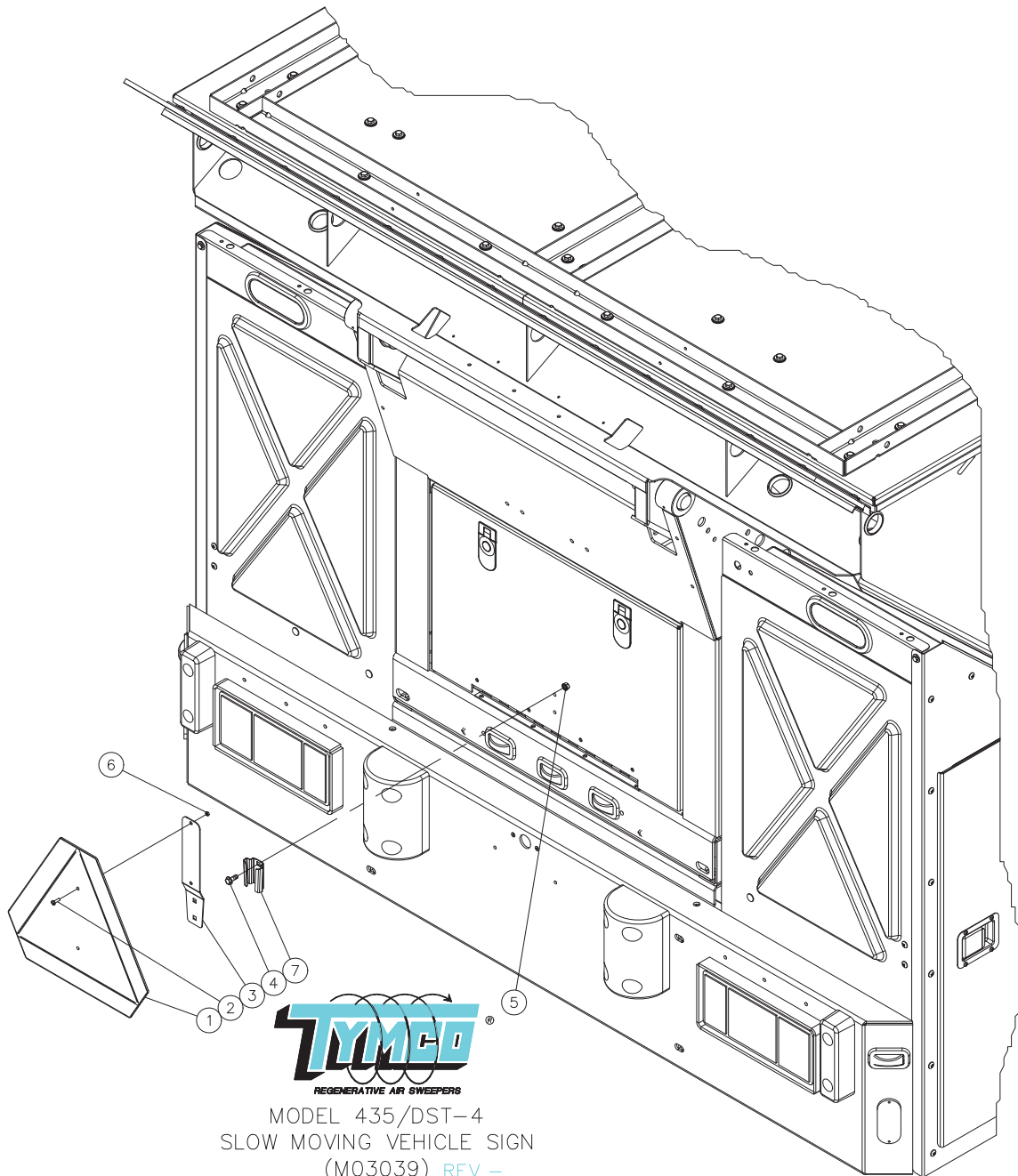
TYMCO MODEL 210/435/DST-4 ISUZU FRONT LED WARNING LIGHTS DWG-M02136

ITEM	QTY	PART NO	DESCRIPTION
	1	507441	Front Bumper LED Warning Lights - Isuzu
1	2	10117	Bolt - 5/16 x 1.00 HHCS
2	4	10305	Flat Washer - 5/16
3	2	5020419	Mount- Isuzu
4	4	13651	Amber Strobing LED
5	2	5022202	Warning Lights Bracket
6	2	10272	Nut - 5/16-18 Kept
7	1	808916	Wire Harness

SEPT/2021

1 OF 1

435OPT46



MODEL 435/DST-4
SLOW MOVING VEHICLE SIGN
(M03039) REV -

07-22-2021
9:00 am
SC

**MODEL 435/DST-4
SLOW MOVING VEHICLE SIGN
DWG-M03039**

ITEM	QTY	PART NO	DESCRIPTION
	1	509245	Slow Moving Vehicle Sign Assembly
1	1	12126	Slow Moving Vehicle Sign
2	2	(Comes w/Sign)	Sign Bolt
3	1	13572	Mount Emblem
4	2	10104	Screw - 5/16-18 x 3/4" Self Tap
5	2	10272	Nut - 5/16-18 Hex Kep
6	2	(Comes w/Sign)	Sign Nut
7	1	13573	Base Mount - Emblem

