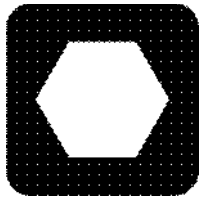


HT220

Parts Manual



Ditch Witch[®]


HT220

ISSUE NO. 03PL-06/11

For Replacement Copy Order **P/N 053-1150**

This manual contains information concerning the following models:
HT220 Tractor

Copyright 2007, 2010, 2011 by The Charles Machine Works, Inc.

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ID0183423

FOREWORD

This manual contains illustrated parts lists to help you select quality ProTech[®] Replacement parts for your Ditch Witch[®] equipment. Using other replacement parts will lessen the productivity of your equipment.

- ◆ Part numbers enclosed in a box are no longer available from The Charles Machine Works, Inc. Your local Ditch Witch dealer may be able to locate the part for you.
- ◆ Footnotes provide more information to help you identify parts shown in the manual.
- ◆ Assembly instructions and Tech Bits articles referenced in footnotes are available through your local Ditch Witch dealer.
- ◆ Description and specifications in this book were current at publication. However, The Charles Machine Works, Inc. reserves the right to improve equipment, so this manual might not reflect the most current improvements.
- ◆ Instructions on recommended equipment use and maintenance are in the Operator's Manual that was shipped with your equipment.

Keep the following in mind when ordering ProTech replacement parts:

- ◆ Specify parts you need by part number and description, not by illustration reference numbers.
- ◆ Have equipment model and serial number on hand to help ensure you get the right parts for your machine whether it's old or new.

Thank you for buying and using Ditch Witch equipment and ProTech replacement parts.

WARRANTY

DW WARRANTY Policy
July, 2005

POLICY 1: DITCH WITCH® EQUIPMENT AND REPLACEMENT PARTS LIMITED WARRANTY POLICY

Subject to the limitation and exclusions herein, free replacement parts will be provided at any authorized Ditch Witch dealership for any Ditch Witch equipment or parts manufactured by The Charles Machine Works, Inc. (CMW) that fail due to a defect in material or workmanship within one (1) year of first commercial use (Exception: 2 years for all SK500 Attachments). Free labor will be provided at any authorized Ditch Witch dealership for installation of parts under this warranty during the first year following "initial commercial" use of the serial numbered Ditch Witch equipment on which it is installed. The customer is responsible for transporting their equipment to an authorized Ditch Witch dealership for all warranty work.

EXCLUSIONS FROM PRODUCT WARRANTY

- All incidental or consequential damages.
- All defects, damages, or injuries caused by misuse, abuse, improper installation, alteration, neglect, or uses other than those for which products were intended.
- All defects, damages, or injuries caused by improper training, operation, or servicing of products in a manner inconsistent with manufacturer's recommendations.
- All engines and engine accessories (these are covered by original manufacturer's warranty).
- Tires, belts, and other parts which are subject to another manufacturer's warranty. (Such warranty will be available to purchaser.)
- ALL IMPLIED WARRANTIES NOT EXPRESSLY STATED HEREIN, INCLUDING ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY.

IF THE PRODUCTS ARE PURCHASED FOR COMMERCIAL PURPOSES, AS DEFINED BY THE UNIFORM COMMERCIAL CODE, THEN THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE FACE HEREOF AND THERE ARE NO IMPLIED WARRANTIES OF ANY KIND WHICH EXTEND TO A COMMERCIAL BUYER. ALL OTHER PROVISIONS OF THIS LIMITED WARRANTY APPLY INCLUDING THE DUTIES IMPOSED.

Ditch Witch products have been tested to deliver acceptable performance in most conditions. This does not imply they will deliver acceptable performance in all conditions. Therefore, to assure suitability, products should be operated under anticipated working conditions prior to purchase.

Defects will be determined by an inspection within thirty (30) days of the date of failure of the product or part by CMW or its authorized dealer. CMW will provide the location of its inspection facilities or its nearest authorized dealer upon inquiry. CMW reserves the right to supply remanufactured replacement parts under this warranty as it deems appropriate.

Extended warranties are available upon request from your local Ditch Witch dealer or CMW.

Some states do not allow exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply. Further, some states do not allow exclusion of or limitation of how long an implied warranty lasts, so the above limitation may not apply. This limited warranty gives product owner specific legal rights and the product owner may also have other rights which vary from state to state.

For information regarding this limited warranty, contact CMW's Product Support Department, P.O. Box 66, Perry, OK 73077-0066, or contact your local Ditch Witch dealer.

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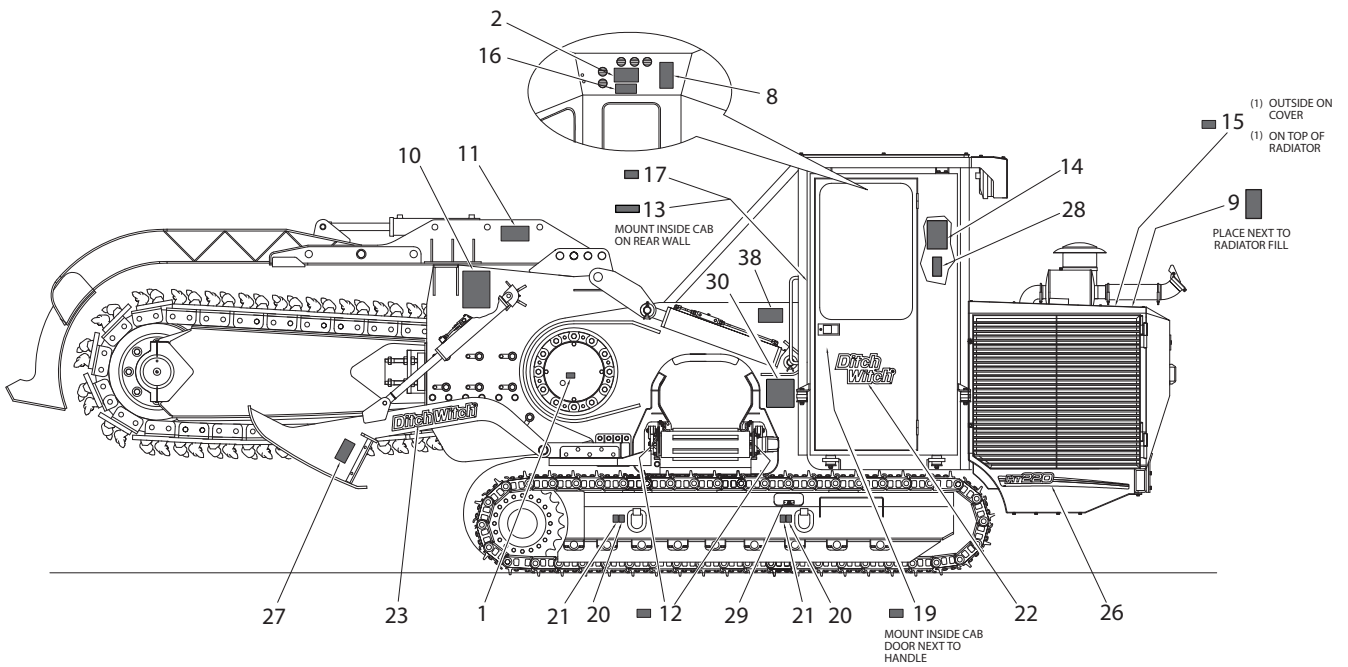
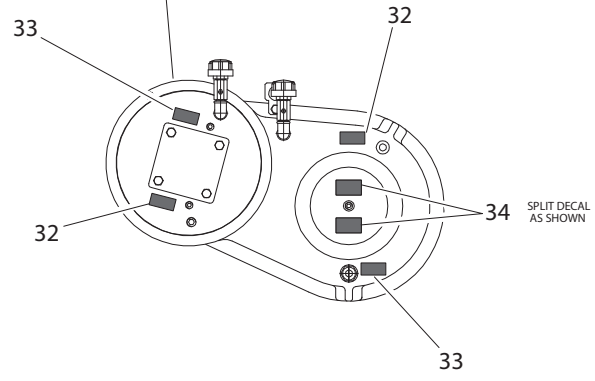
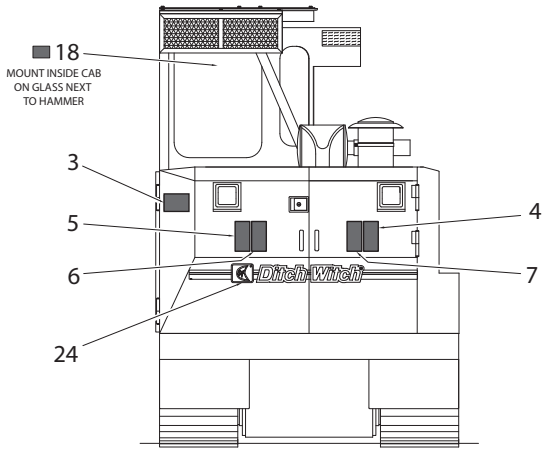
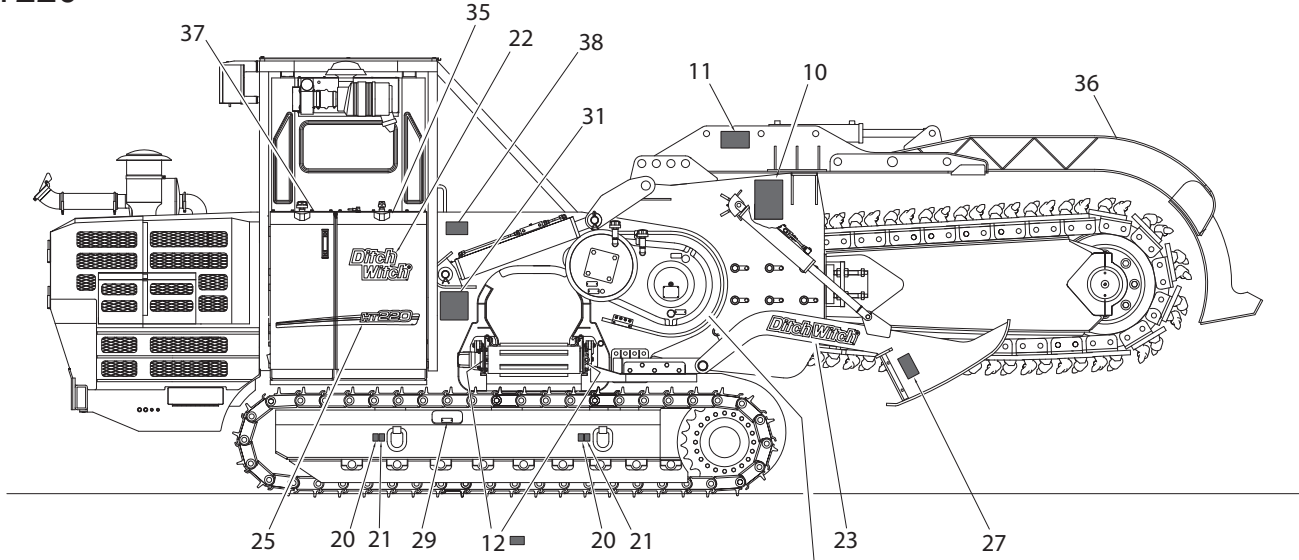
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DECALS

DECAL LOCATION HT220



DECAL LOCATION

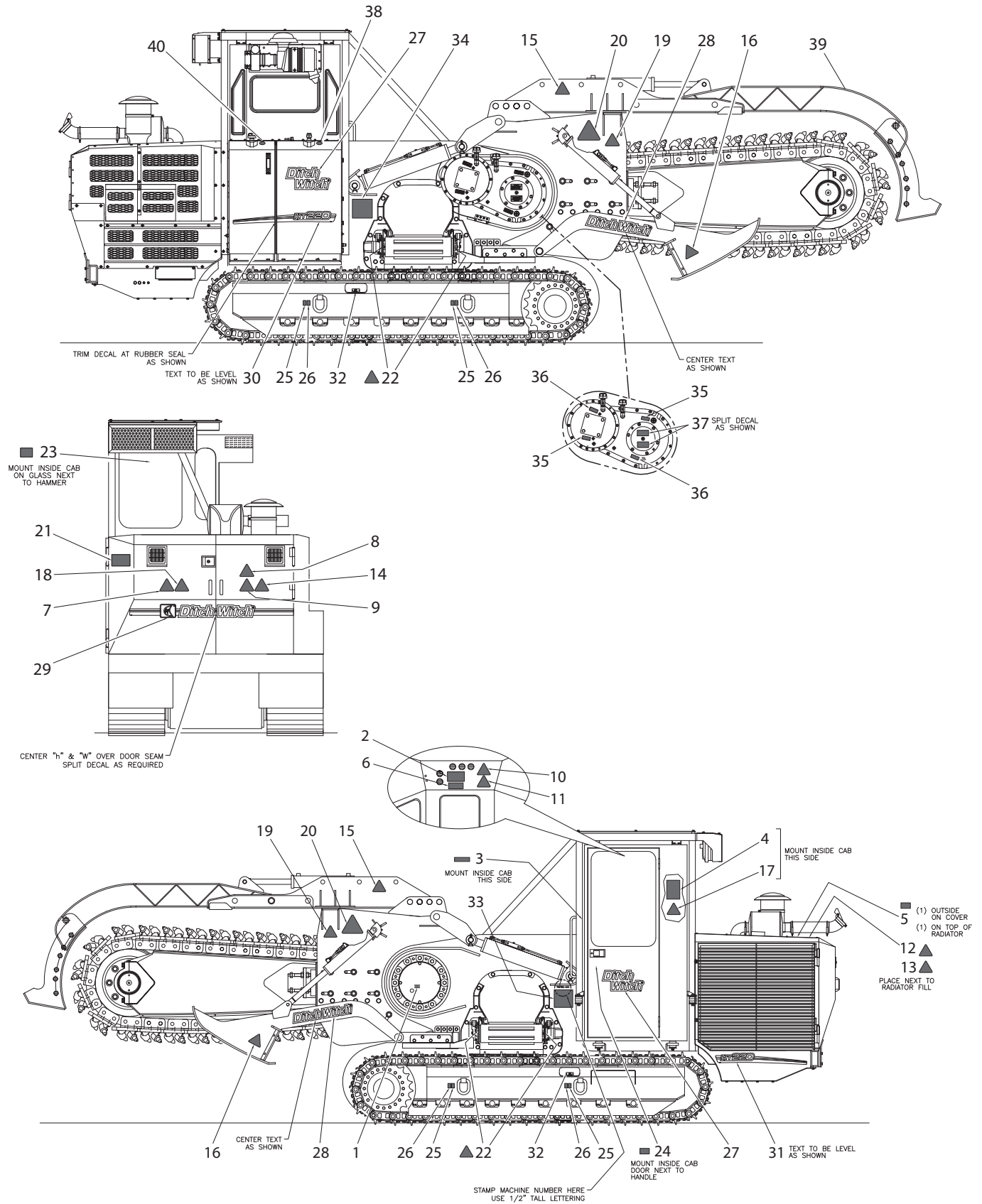
HT220

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	285-9800-050		DECAL KIT - HT220	REFERENCED TO (CMW# 270-1532)
1	T00-9800-031	1	DECAL, LUBRICATE EVERY 4 HOURS	
2	T00-9800-038	1	DECAL, SAFETY INSTRUCTIONS	
3	T00-9800-039	1	DECAL, OPERATOR NOTICE	
4	T00-9800-042	1	DECAL, WARNING CRUSH HORIZONTAL	
5	T00-9800-043	1	DECAL, WARNING ENGINE OFF FOR SERVICING	
6	T00-9800-044	1	DECAL, WARNING READ BEFORE SERVICING	
7	T00-9800-045	1	DECAL, WARNING BATTERY	
8	T00-9800-046	1	DECAL, WARNING ELECTRICITY HAZARD	
9	T00-9800-048	1	DECAL, WARNING RADIATOR	
10	T00-9800-050	2	DECAL, DANGER CHAIN AND AUGER	
11	T00-9800-052	2	DECAL, WARNING CRUSH VERTICAL	
12	T00-9800-058	4	DECAL, WARNING MOVING PARTS	
13	T00-9800-070	1	DECAL, CAUTION WELDING	
14	T00-9800-072	1	DECAL, IMPORTANT NOTICE MAINTENANCE	
15	T00-9800-073	2	DECAL, TEXACO EXTENDED LIFE COOLANT	
16	T00-9800-074	1	OPERATOR PRESENCE	
17	T00-9800-075	1	DECAL, ONE CALL SYSTEM	
18	T00-9800-142	1	DECAL, EXIT GLASS IN EMERGENCY	
19	T00-9800-143	1	ID CE PLATE	
20	T00-9800-144	4	LIFT LOCATION	REFERENCED TO (CMW# 274-442)
21	T00-9800-145	4	TIE DOWN LOCATION	REFERENCED TO (CMW# 274-318)
22	T00-9800-146	2	STACKED DITCH WITCH LOGOTYPE	REFERENCED TO (CMW# 700-129)
23	T00-9800-147	2	DITCH WITCH LOGOTYPE	REFERENCED TO (CMW# 273-502)
24	T00-9800-148	1	DITCH WITCH LOGOTYPE	REFERENCED TO (CMW# 270-1492)
25	T00-9800-149	1	HT220 W/STRIPE R	REFERENCED TO (CMW# 270-1490)
26	T00-9800-150	1	HT220 W/STRIPE L	REFERENCED TO (CMW# 270-1491)
27	T00-9800-115	2	DECAL, MOVING PARTS	
28	T00-9800-116	1	DECAL, ROLLOVER POSSIBLE	
29	200-9800-001	2	PLATE, LABEL, TRACK ADJUSTER	
30	T00-9800-151	1	HT220 LUBRICATION CHART	REFERENCED TO (CMW# 270-1872)
31	T00-9800-152	1	HT220 LUBRICATION CHART	REFERENCED TO (CMW# 270-1873)
32	T00-9800-055	2	DECAL, OIL LEVEL R/H	
33	T00-9800-056	2	DECAL, OIL LEVEL L/H	
34	T00-9800-079	1	DECAL, GEARBOX FILL	
35	700-062	1	DECAL, FUEL (DIESEL)	
36	270-2317	1	DECAL, DANGER STRIPE 3.00" X 32.00"	
37	700-063	1	DECAL, HYDRAULIC FLUID	
38	270-2322	2	DECAL, WARNING FALL POSSIBLE	

FOOTNOTES:

1. ALL DECALS ARE SUPPLIED BY TESMEC. CMW#'S ARE FOR REFERENCE ONLY.

DECAL LOCATION HT220 ISO FOREIGN



DECAL LOCATION HT220 ISO FOREIGN

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
	285-9800-100		ISO DECAL KIT EN - HT220	
1	T00-9800-031	1	DECAL, LUBRICATE EVERY 4 HOURS	
2	"A"	1	DECAL, SAFETY INSTRUCTIONS	
3	T00-9800-070	1	DECAL, CAUTION WELDING	
4	T00-9800-072	1	DECAL, IMPORTANT NOTICE - MAINTENANCE	
5	T00-9800-073	2	DECAL, EXTENDED LIFE COOLANT	
6	T00-9800-074	1	DECAL, OPERATOR PRESENCE	
7	T00-9800-117	1	DECAL, ISO, ENGINE OFF FOR SERVICING	
8	T00-9800-118	1	DECAL, ISO, BATTERY BURN HAZARD	
9	T00-9800-119	1	DECAL, ISO, BATTERY EXPLOSION HAZARD	
10	T00-9800-120	1	DECAL, ISO, ELECTRIC SHOCK HAZARD	
11	T00-9800-121	1	DECAL, ISO, ELECTRIC SHOCK-KEEP AWAY	
12	T00-9800-122	1	DECAL, ISO, RADIATOR-EXPLOSION HAZARD	
13	T00-9800-123	1	DECAL, ISO, RADIATOR-BURN HAZARD	
14	T00-9800-124	1	DECAL, ISO, CRUSH HAZARD-HORIZONTAL	
15	T00-9800-125	2	DECAL, ISO, CRUSH HAZARD-VERTICAL	
16	T00-9800-126	2	DECAL, ISO, CRUSH HAZARD-FOOT	
17	T00-9800-127	1	DECAL, ISO, WEAR SEAT BELT	
18	T00-9800-128	1	DECAL, ISO, READ BEFORE SERVICING	
19	T00-9800-129	2	DECAL, ISO, DO NOT APPROACH MOVING CHAIN	
20	T00-9800-130	2	DECAL, ISO, DANGER-CHAINSAW	
21	"B"	1	DECAL, TEXT, OPERATOR NOTICE	
22	T00-9800-141	4	DECAL, ISO, WARNING-MOVING PARTS	
23	T00-9800-142	1	DECAL, ISO, EXIT GLASS IN EMERGENCY	
24	T00-9800-143	1	ID PLATE, MANUFACTURED FOR	
25	T00-9800-144	4	DECAL, LIFT LOCATION	REFERENCED TO (CMW# 274-442)
26	T00-9800-145	4	DECAL, TIE DOWN LOCATION	REFERENCED TO (CMW# 274-318)
27	T00-9800-146	2	DECAL, LOGO, DITCH WITCH STACKED	REFERENCED TO (CMW# 700-129)
28	T00-9800-147	2	DECAL, LOGO, DITCH WITCH	REFERENCED TO (CMW# 273-502)
29	T00-9800-148	1	DECAL, LOGO, DITCH WITCH	REFERENCED TO (CMW# 270-1492)
30	T00-9800-149	1	DECAL, HT220 W/STRIPE R	REFERENCED TO (CMW# 270-1490)
31	T00-9800-150	1	DECAL, HT220 W/STRIPE L	REFERENCED TO (CMW# 270-1491)
32	200-9800-001	2	PLATE, LABEL, TRACK ADJUSTER	
33	"C"	1	DECAL, HT220 LUBE CHART	
34	"D"	1	DECAL, HT220 LUBE CHART	
35	T00-9800-055	2	DECAL, OIL LEVEL, R/H	
36	T00-9800-056	2	DECAL, OIL LEVEL, L/H	
37	T00-9800-079	1	DECAL, GEARBOX FILL	
38	700-062	1	DECAL, FUEL (DIESEL)	
39	270-2317	1	DECAL, DANGER STRIPE 3.00" X 32.00"	
40	700-063	1	DECAL, HYDRAULIC FLUID	

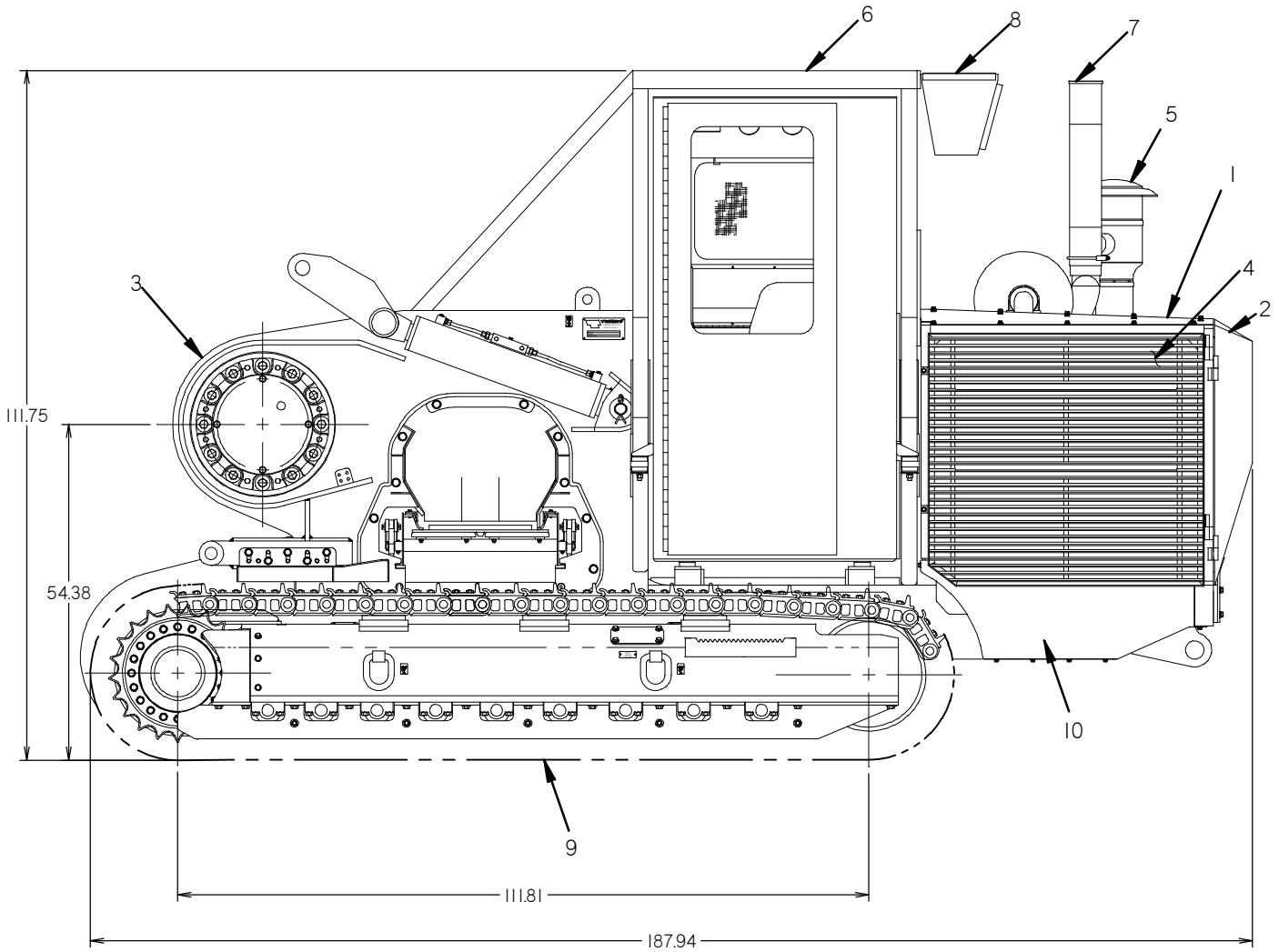
ISO FOREIGN DECAL CHART					
PART#	ENGLISH 285-9800-100	ITALIAN 285-9800-101	FRENCH 285-9800-102	GERMAN 285-9800-103	SPANISH 285-9800-104
"A"	T00-9800-131	T00-9800-132	T00-9800-133	T00-9800-134	T00-9800-135
"B"	T00-9800-136	T00-9800-137	T00-9800-138	T00-9800-139	T00-9800-140
"C"	T00-9800-151	T00-9800-153	T00-9800-155	T00-9800-157	T00-9800-159
"D"	T00-9800-152	T00-9800-154	T00-9800-156	T00-9800-158	T00-9800-160

FOOTNOTES:

1. ALL DECALS ARE SUPPLIED BY TESMEC. CMW #'S ARE FOR REFERENCE ONLY.

HYDRAULICS

TRACTOR ASSEMBLY
HT220
BEGINS WITH S/N CMWHT220J80000012



TRACTOR ASSEMBLY

HT220

BEGINS WITH S/N CMWHT220J80000012

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TS1000-050	1	ENG. COMPARTMENT ENCLOSURE	
2. TS1000-070	1	FRONT DOORS ASSEMBLY	
3. TS1000-080	1	TRACTOR WELDMENT	
4. TS4500-000	1	ENG., PUMPS & RADIATOR INSTALL	REFER TO ID0213542
5. TS4501-000	1	AIR CLEANER INSTALLATION	REFER TO ID0213543
6. TS1303-000	1	CAB INSTALLATION	REFER TO ID0213528
7. TS4502-000	1	SILENCER INSTALLATION	REFER TO ID0213544
8. TS6623-000	1	A/C SYSTEM INSTALLATION	REFER TO ID0213552
9. TS2600-000	1	TRACK ASSEMBLY	REFER TO ID0213534
10. TS9800200	1	DECAL INSTALLATION	REFER TO ID0173531

NOT SHOWN:

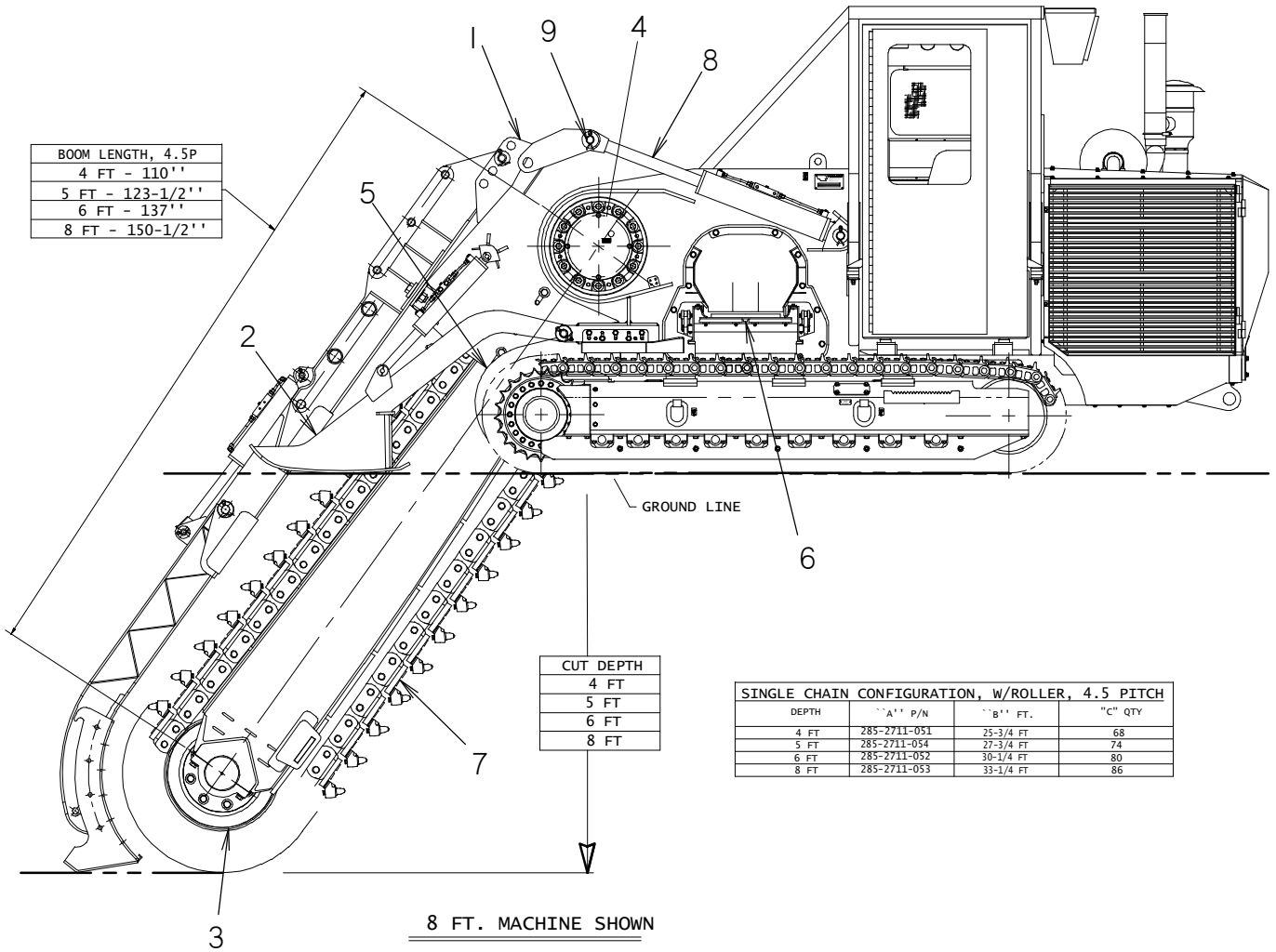
11. TS7000-100	-	HYDRAULIC CIRCUIT	REFER TO ID0213553
12. TS2210-100	-	ELECTRICAL SCHEMATIC	REFER TO ID0213531
13. TS8400-000	-	ELECTRICAL AND HYDRAULIC	
14. TS6622-000	-	A/C SYSTEM ELEC. SCHEMATIC	REFER TO ID0213551
15. TS4801-000	-	HYD. TANK INSTALLATION	REFER TO ID0213546
16. TS4800-000	-	FUEL TANK INSTALLATION	REFER TO ID0213545
17. TS1500-000	-	BATTERY INSTALLATION	REFER TO ID0213530
18. TS1400-000	-	SEAT INSTALLATION	REFER TO ID0213529
19. TS1300-000	-	INSTRUMENT PANEL INSTALLATION	
21. TS1101-000	-	BRACKET INSTALLATION	

FOOTNOTES:

NOTE:

REF. 285-0500-000

BACKEND ASSEMBLY
HT220
BEGINS WITH S/N CMWHT220J80000012



BOOM LENGTH, 4.5P	
4 FT	- 110''
5 FT	- 123-1/2''
6 FT	- 137''
8 FT	- 150-1/2''

CUT DEPTH	
4 FT	
5 FT	
6 FT	
8 FT	

SINGLE CHAIN CONFIGURATION, w/ROLLER, 4.5 PITCH			
DEPTH	"A" P/N	"B" FT.	"C" QTY
4 FT	285-2711-051	25-3/4 FT	68
5 FT	285-2711-054	27-3/4 FT	74
6 FT	285-2711-052	30-1/4 FT	80
8 FT	285-2711-053	33-1/4 FT	86

BACKEND ASSEMBLY

HT220

BEGINS WITH S/N CMWHT220J80000012

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TS2713-001	1	INNER SHROUD WELDMENT	
2. TS2708-001	1	STABILIZER WELDMENT	REFER TO ID0213536
3. TS2710-100	1	TAILWHEEL ASSEMBLY	REFER TO ID0213537
4. TS2715-000	1	HEADSHAFT INSTALLATION	REFER TO ID0213538
5. TS2718-000	1	SCOOP PLATE INSTALLATION	REFER TO ID0213239
6. TS4900-000	1	CROSS CONVEYOR INSTALLATION	REFER TO ID0213547
7. TST00-5503-055	1	CHAIN-DIGGING	REFER TO "B" ON CHAIN CHART ON GRAPHICS PAGE.
8. TST00-6500-195	2	CYL, 6" BORE	BOOM TILT
9. TST01-9232-066	4	PIN-ø2" X 8-1/4" LG.	SEE FOOTNOTE 1

NOT SHOWN:

- 10. TS7100-001 - HOSE KIT - TRACTOR & BACKEND
- 11. TST00-6000-029 - HAND PUMP
- 12. TS365-8300-002 - BASEPLATE BOLTING PLATE,4.5P,OUTSIDE SEE FOOTNOTE 2

FOOTNOTES:

- 1. REFER #9 INCL'S (4X) 1/2" X 3-1/2" COTTER PIN & (4X) 2" FLAT WASHER.
- 2. REFER TO CATAGORY "C" ON CHAIN CHART ON GRAPHICS PAGE.

NOTE:

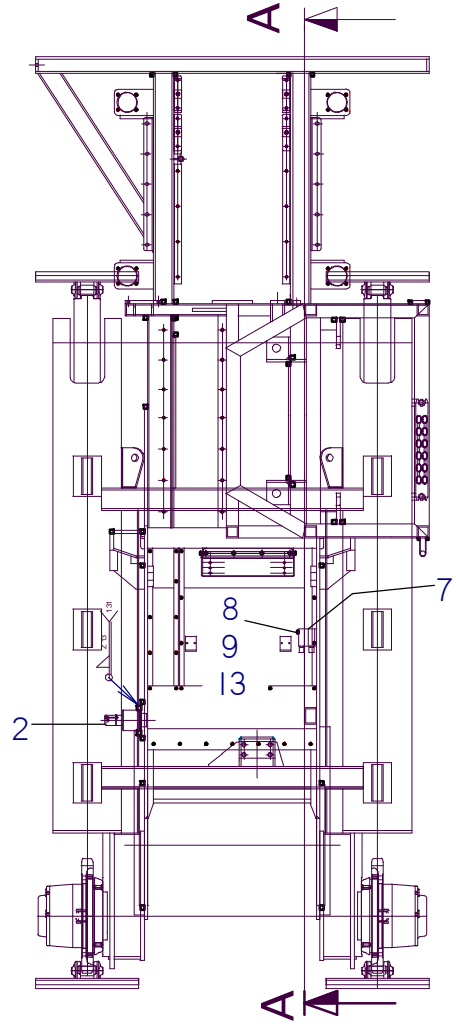
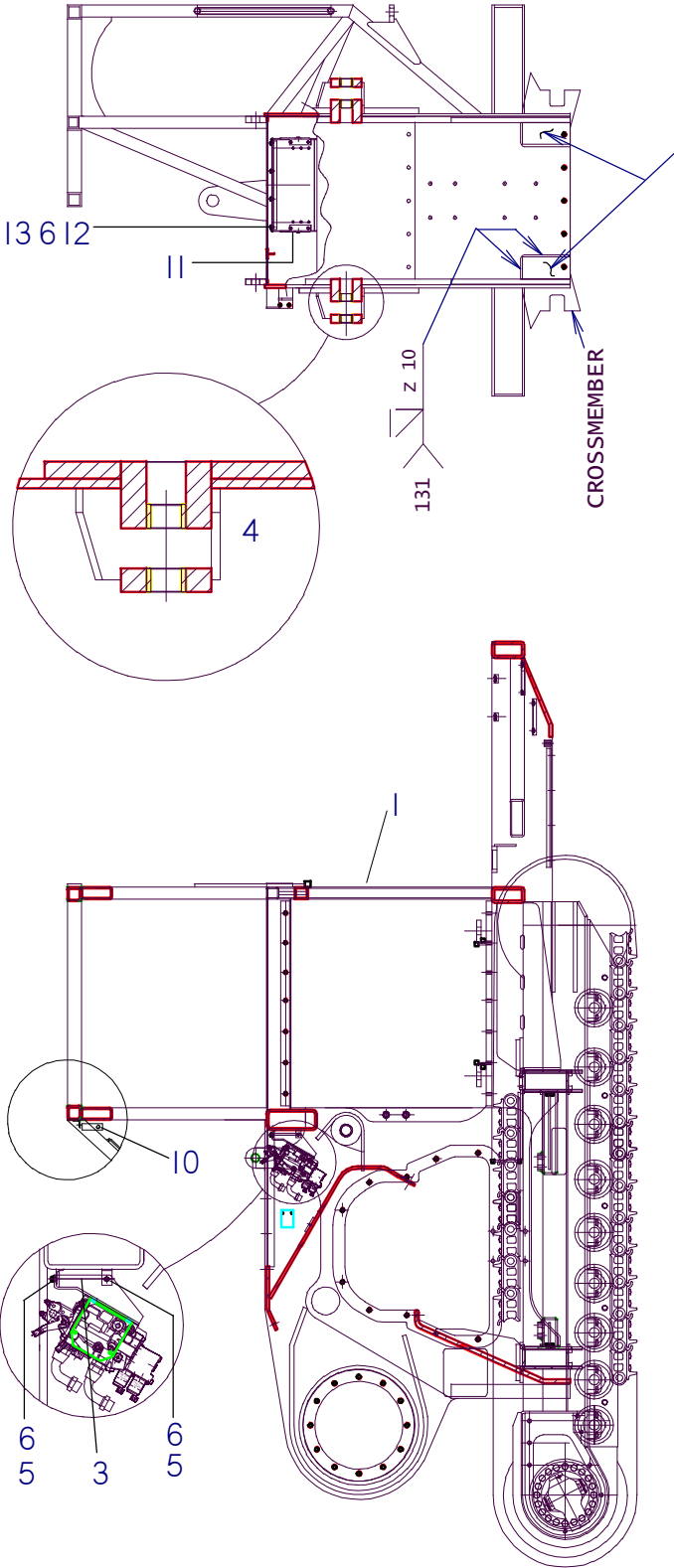
- 1. FOR BOOM & WEAR PLATE INSTALLATION INSTRUCTION PART NUMBERS REFER TO CATAGORY "A" ON CHAIN CHART ON GRAPHICS PAGE.
- 2. TESMEC REFER: 285-0620-000

MAINFRAME ASSEMBLY HT220

VALID FOR BOTH SIDES

SECTION "A-A"

VALVE SUPPORT POSITION



MAINFRAME ASSEMBLY

HT220

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TS88451	1	FRAME WELDMENT	
2. TS82959	1	TORQUE POST	
3. TS88760	1	VALVE MOUNT	
4. TS82932	4	BUSHING	
5. 107-349	6	HHCS M8 X 20 UNI 5737 8.8	TS40108020
6. TS25012008	6	LOCK WASHER D.8,4 UNI 1751	
7. TS89190	1	MOUNT, VALVE	
8. 107-054	2	HHCS M6 X 90 UNI 5737 8.8	TS40106090
9. TS25110006	6	WASHER D.6,4 X 12.5 UNI 6592 Z	
10. TS09102994	1	SENSOR, TEMPERATURE, AIR	
11. TS89004	2	SUPPORT	
12. 106-231	4	HHCS M6 X 16 5739 8.8 Z	TS41306016
13. TS25112006	6	LOCK WASHER D 6,4 UNI 1751 Z	

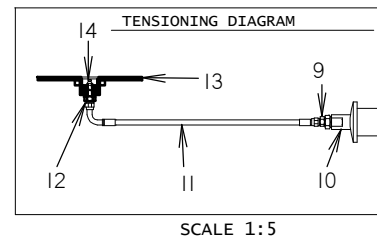
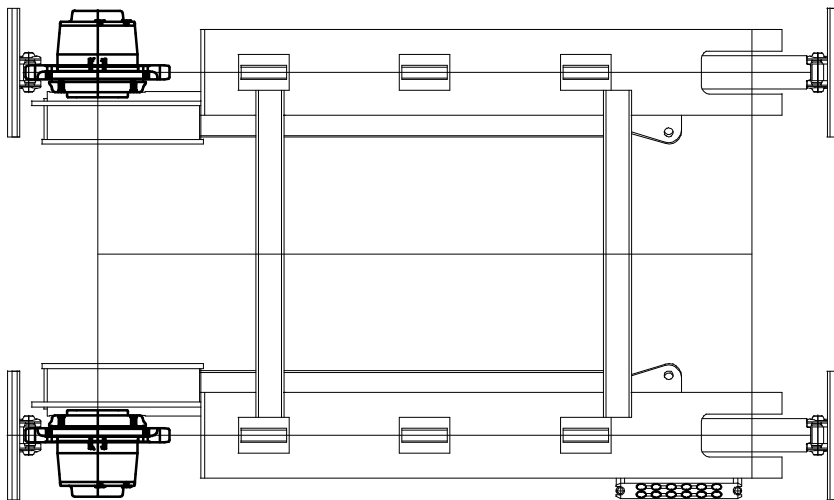
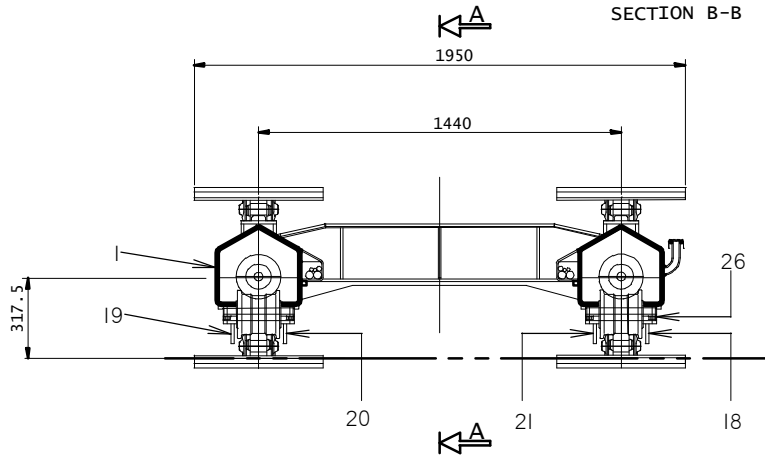
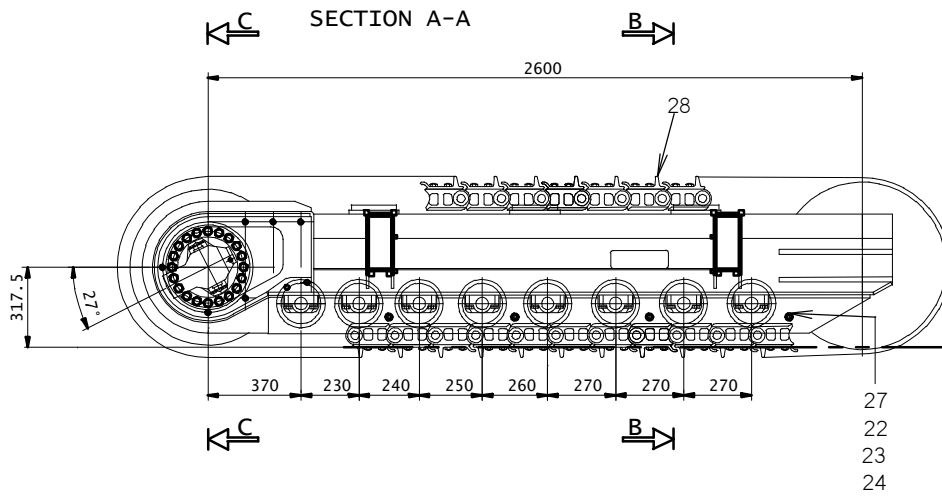
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FOOTNOTES:

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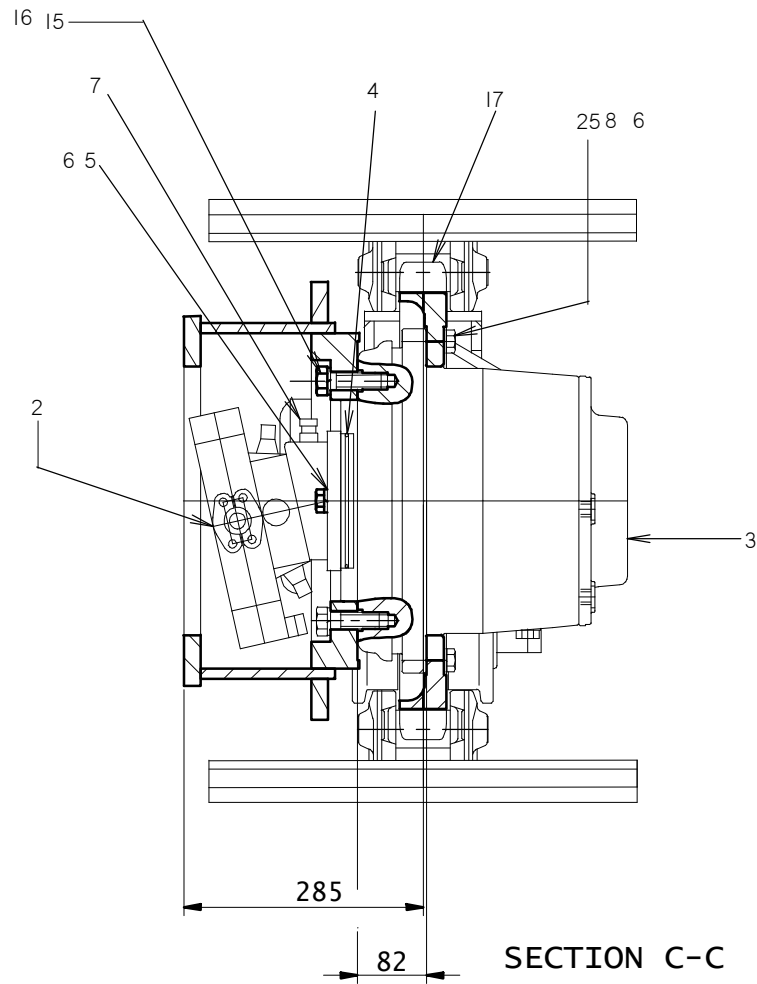
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UNDERCARRIAGE ASSEMBLY HT220



UNDERCARRIAGE ASSEMBLY

HT220



NOTE:

ADJUSTMENT OF HYDRAULIC MOTOR
SPEED SENSOR.

- 1) SCREW IN UNTIL SENSOR CONTACTS THE TOOTH OF THE HYDRAULIC MOTOR.
- 2) UNSCREW 120° (1/3 OF TURN) EQUIVALENT TO 0,5mm GAP.

UNDERCARRIAGE ASSEMBLY

HT220

REF PART NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	TS85627	1	UNDERCARRIAGE WELDMENT	
2.	TS13504205	2	MOTOR	
3.	TS13900115	2	PLANETARY GEARBOX	
4.	TST005300043	2	O-RING	
5.	105-998	4	HHCS M16 X 40 UNI 5739	TS40316040
6.	TS25012017	44	LOCK WASHER D.17 UNI 1751	
7.	TS09102696	-	SENSOR	
8.	TS25110016	40	WASHER ø17 X 30 UNI 6592 Z	
9.	TS05802044	2	NIPPLE M10 X 1 1/4 GAS	
10.	TS36401054	2	VALVE	
11.	TS05301074	-	TUBE	
12.	TS05801001	2	NIPPLE 1/4 GAS 1/8 GAS	
13.	TS83905	2	LID	
14.	TST005300401	2	GREASE FITTING 1/8 NPT DIRITTO	
15.	106-459	40	HHCS M20 X 70 UNI 5737 10.9	TS42120070
16.	106-129	40	LOCK WASHER D.20 UNI 5714	
17.	TS83906	2	SPROCKET	
18.	TS85632	1	TRACK GUARD, LONG	
19.	TS85633	1	TRACK GUARD, LONG	
20.	TS85630	1	TRACK GUARD, SHORT	
21.	TS85631	1	TRACK GUARD, SHORT	
22.	TS85641	8	SPACER	
23.	106-077	16	HEX NUT M16 5588 6S PG NO	TS26200116
24.	106-392	16	WASHER D.16 UNI 9195-B	
25.	106-074	40	HHCS M16 X 60 UNI 5737 10.9	TS42116060
26.	TS36400878	16	TRACK ROLLER	
27.	TS85640	8	HHCS M16 LG.=270	
28.	TS36401051	2	TRACKS 20"	

NOT SHOWN:

TS85634	1	GUARD, GEARBOX RH
TS85634	1	GUARD, GEARBOX LH
TS36400881	2	TENSIONER

FOOTNOTES:

NOTE:

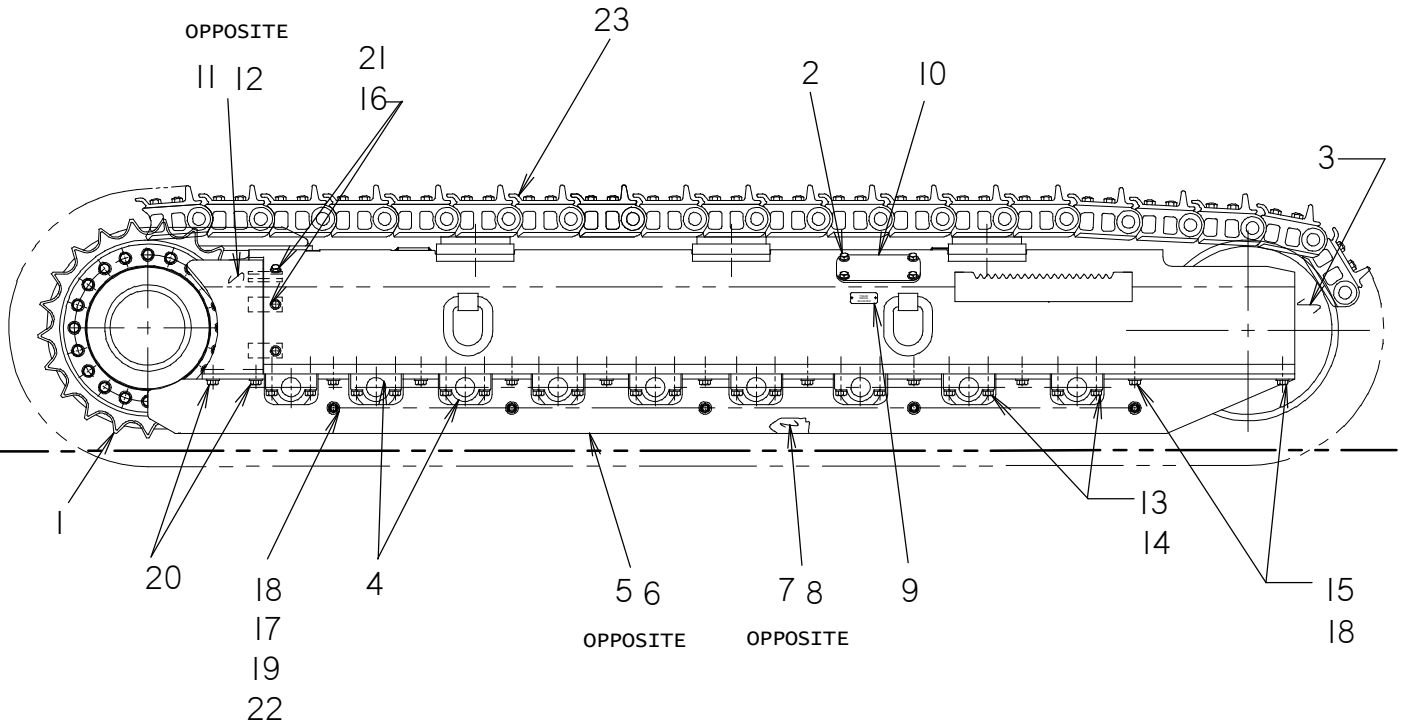
REF. 856250

TRACK ASSEMBLY

HT220

BEGINS WITH S/N CMWHT220J80000012

REFER TO "REQUIRED OPTIONS"
ON TEXT PAGE



TRACK ASSEMBLY

HT220

BEGINS WITH S/N CMWHT220J80000012

REF PART

NO. NUMBER QTY DESCRIPTION

REMARKS

1.	TS2601-000	1	TRACK DRIVE ASSEMBLY
2.	105-121	8	HHCS (1/2-13 UNC X 1")
3.	TST00-2600-220	2	IDLER GROUP ASSEMBLY
4.	TST00-2600-216	18	TRACK ROLLER, SNGL FLG, FL6
5.	TS2600-004	-	TRACK FRAME GUARD, OUTSIDE,R/H
6.	TS2600-006	-	TRACK FRAME GUARD, OUTSIDE,L/H
7.	TS2600-006	-	TRACK FRAME GUARD, INSIDE,R/H
8.	TS2600-007	-	TRACK FRAME GUARD, INSIDE, L/H
9.	TS200-9800-001	2	I.D. PLATE-TRACK ADJUSTER
10.	TS1001-011	-	COVER, TRACK FRAME
11.	TS2600-008	-	GUARD-GEARBOX, R/H
12.	TS2600-009	-	GUARD-GEARBOX, L/H
13.	105-437	72	HHCS (5/8-11 UNC X 2-1/2")
14.	105-385	72	LOCK WASHER (5/8")
15.	105-358	42	HHCS (5/8-11 UNC X 1-1/2")
16.	105-858	8	HHCS (1/2-13 UNC X 1-1/2")

REFER TO REF:#23, REQUIRED OPTIONS BELOW.

NOT SHOWN:

TST00-2600-008	1	COUPLING, TRACK ADJUSTER
TST00-2600-046	2	TENSION UNIT WASHER
TST00-2600-045	2	TENSION UNIT FITTING

FOOTNOTES:

NOTE:

PARTS DISPLAYED FOR REFERENCE ONLY:

17.	3/4"BP SCH80 .154 WALL X 7-5/8" LG.	10X
18.	FLAT WASHER (5/8") HARDENED F436	66X
19.	NUT (5/8-11 UNC)	20X
20.	HHCS (5/8-11 UNC X 1")	4X
21.	FLAT WASHER (1/2") HARDENED F436	14X
22.	ALL THREAD (5/8-11 UNC X 10-1/2") C1018	10X

REQUIRED OPTIONS:

23. TRACK GROUP (2X):

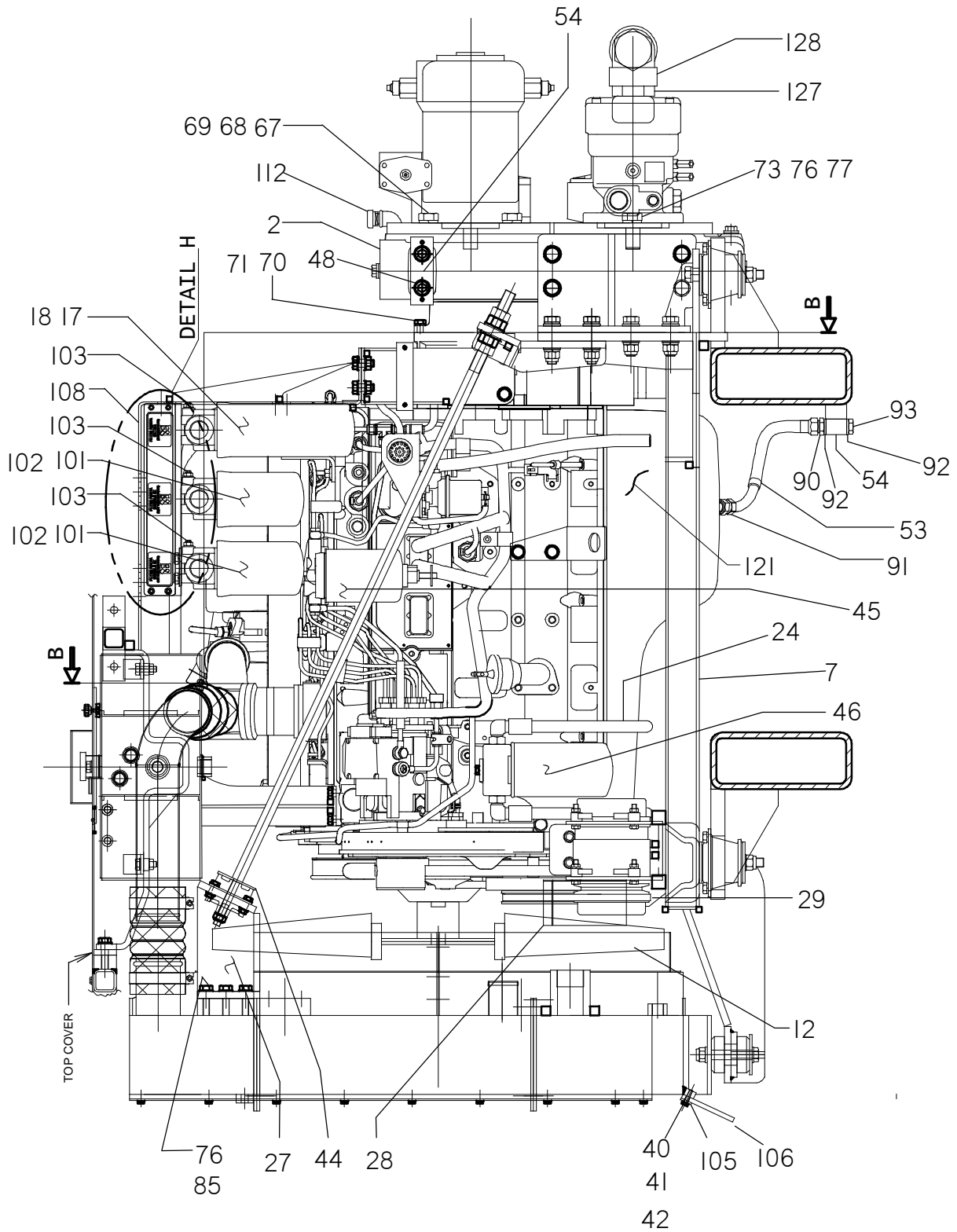
TST00-2600-217 2 TRACK GROUP-20" WIDE TRIPLE GROUSER - TOTAL REQUIRED PER MACHINE

TST00-2600-224 2 TRACK GROUP-20" WIDE SINGLE GROUSER - TOTAL REQUIRED PER MACHINE

TESMEC REF: 285-2600-000

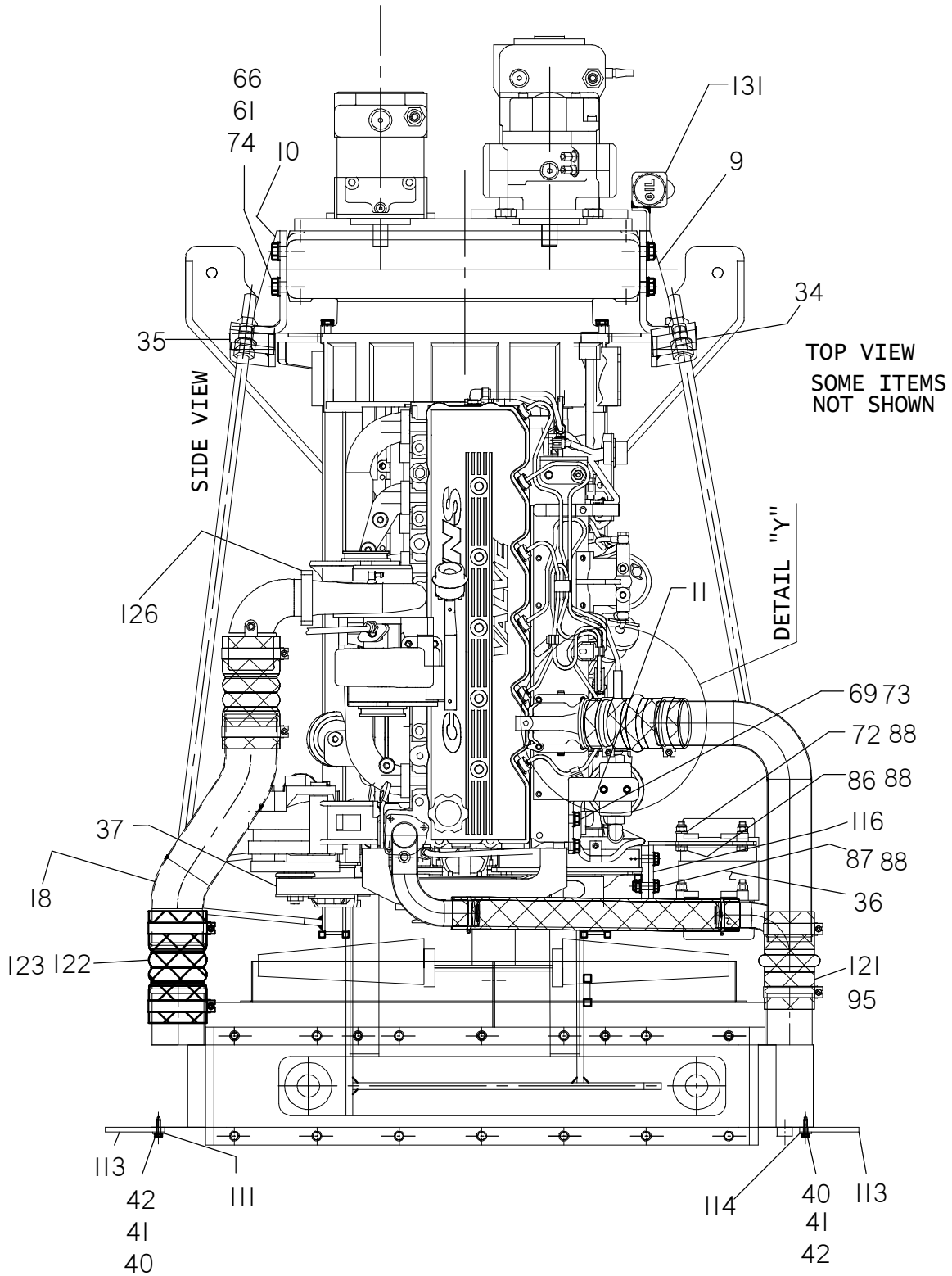
ENGINE INSTALLATION

HT220



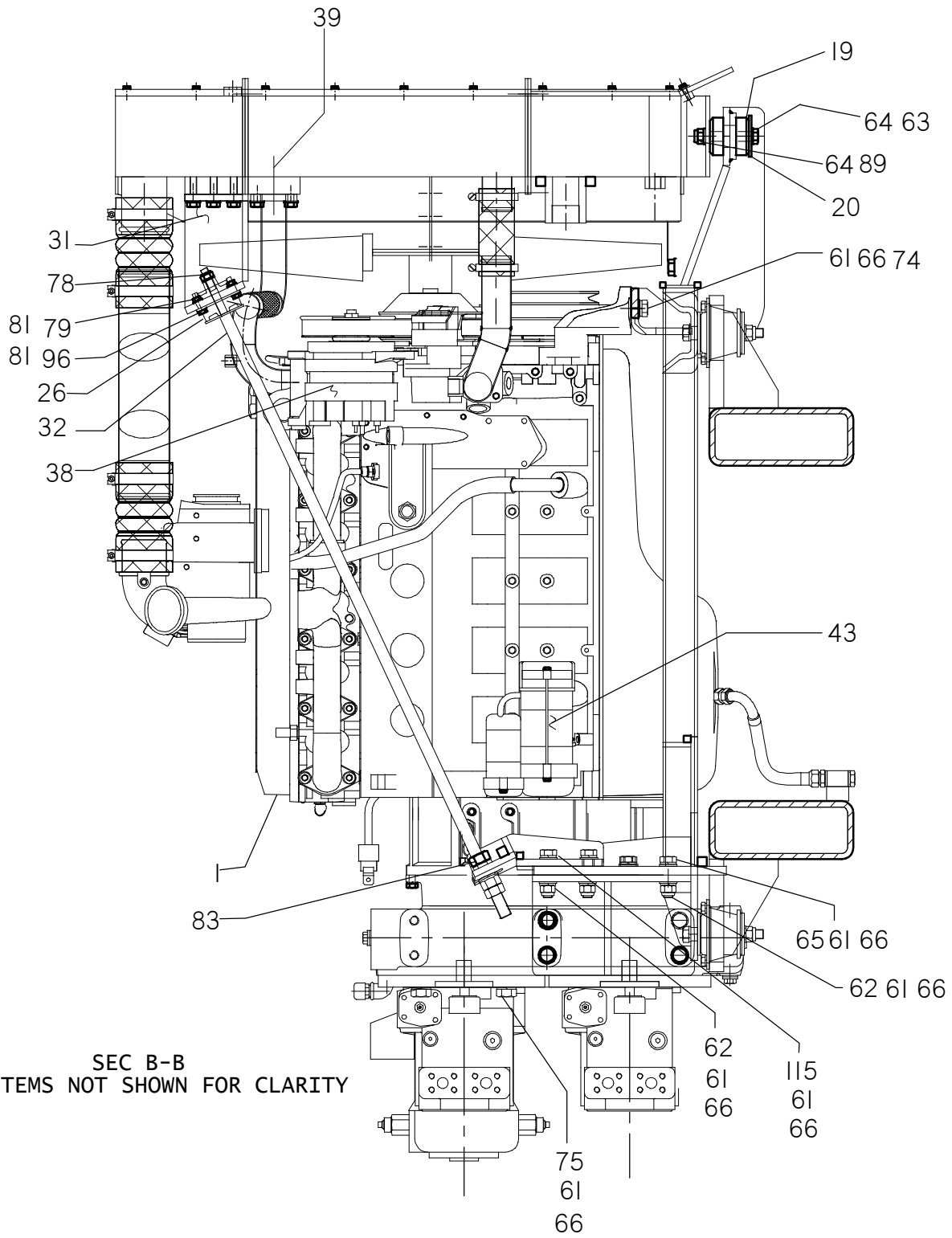
ENGINE INSTALLATION

HT220



ENGINE INSTALLATION

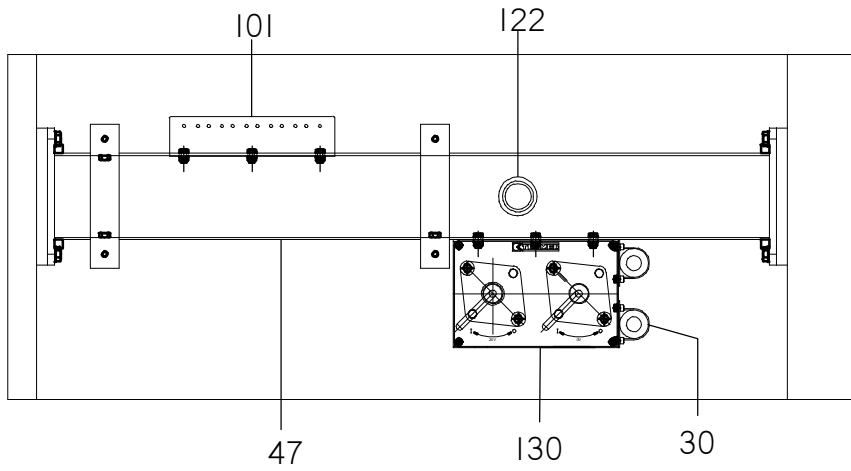
HT220



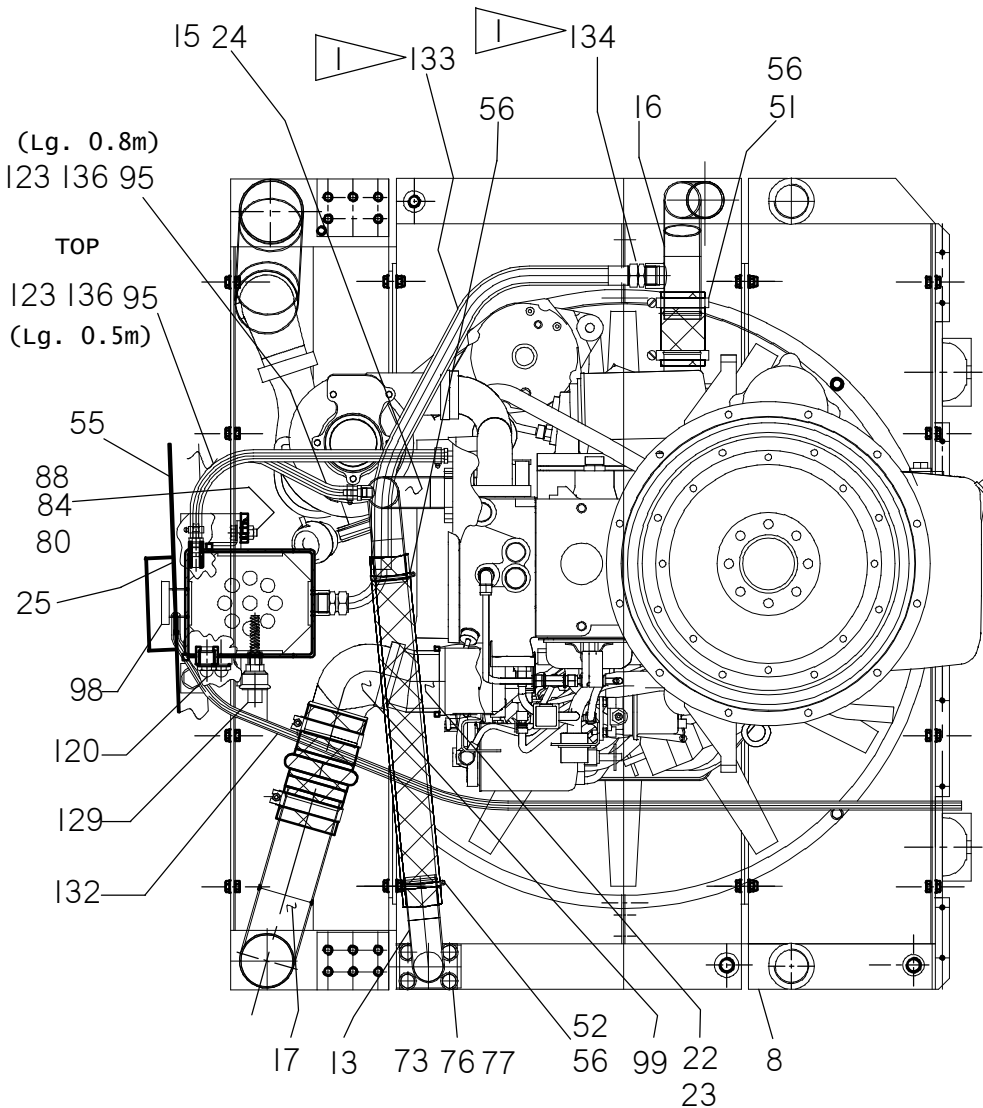
SEC B-B
SOME ITEMS NOT SHOWN FOR CLARITY

ENGINE INSTALLATION

HT220



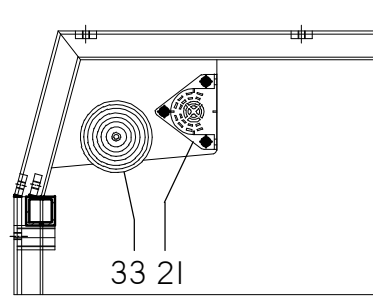
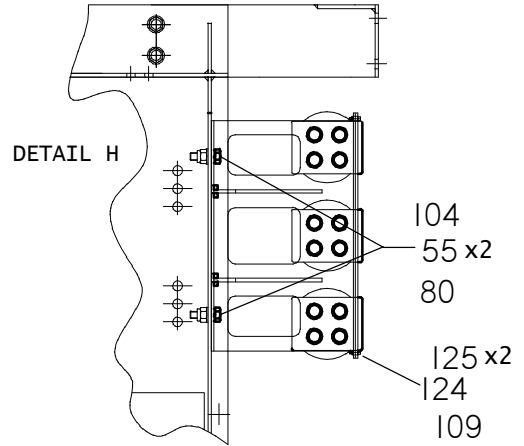
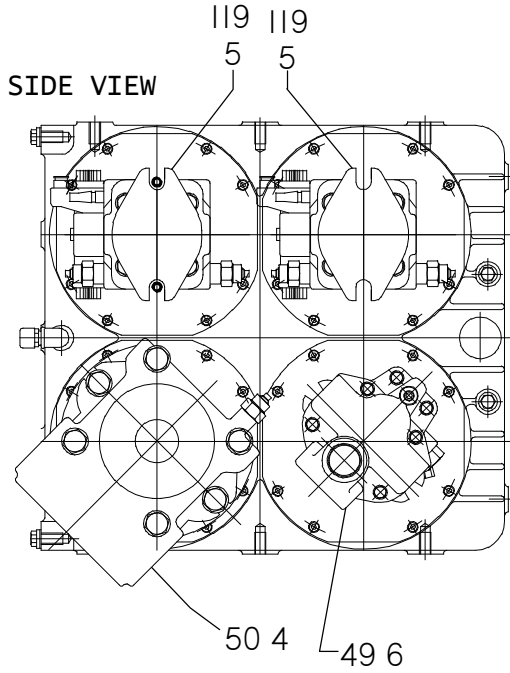
NOTE:
 1) CONNECT TUBES IN SUCH A WAY AS TO AVOID SYPHON.



SEC. B-B
 SOME ITEMS NOT SHOWN
 FOR CLARITY

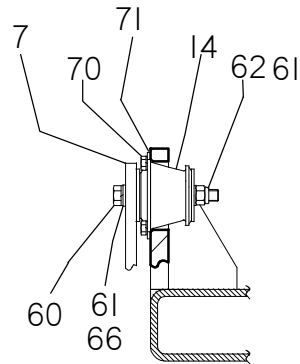
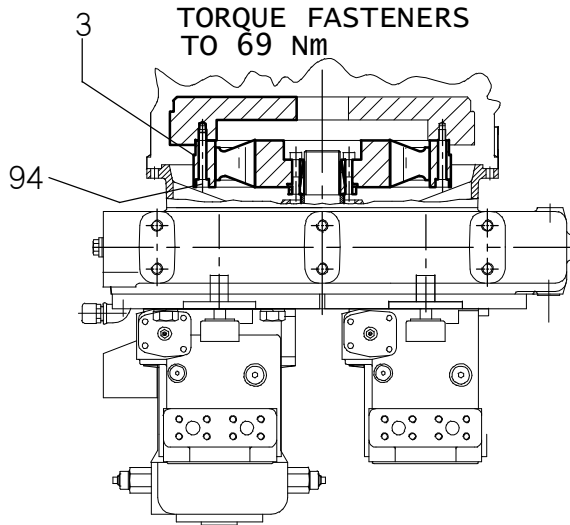
ENGINE INSTALLATION

HT220

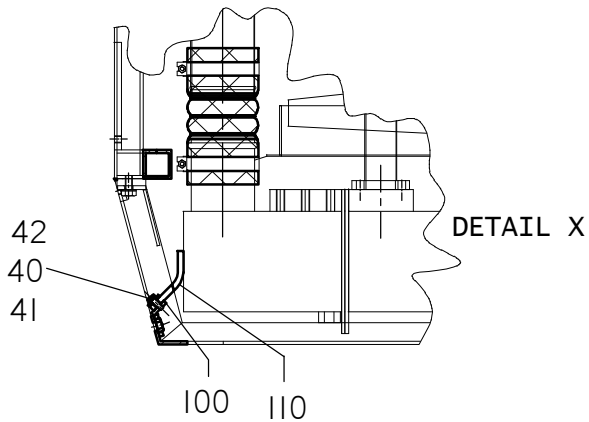


ASSEMBLED VIEW
HORN & BUZZER

DETAIL ASSEMBLY, PUMPS AND PUMD DRIVE



ASSEMBLED VIEW
ANTIVIBRATION MOUNT, ENGINE
(TYPICAL 4-PLACES)



ENGINE INSTALLATION

HT220

REF PART NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	TS13524101	1	ENG,CUMMINS QSB5.911 24V 153KW@2200 RPM	
2.	TS13700511	1	GEARBOX, 4-PUMP DRIVE	
3.	TS13700710	1	FLEXIBLE JOINT	
4.	TS13505487	1	PUMP	
5.	TS13505574	2	PUMP	
6.	TST006000014	1	PUMP	
7.	TS85437	1	ENGINE FRAME	
8.	TS88409	1	RADIATOR, AIR-WATER-OIL	
9.	TS88440	1	SUPPORT SX PUMP DRIVE	
10.	TS88441	1	SUPPORT DX PUMP DRIVE	
11.	TS84582	1	SUPPORT, ENGINE OIL FILTER	
12.	TS33000030	1	FAN	
13.	TS88411	1	MANIFOLD, RADIATOR, WATER	
14.	TS50000103	1	ANTI-VIBRATION PAD	
15.	TS88412	1	MANIFOLD, ENGINE, WATER	
16.	TS88413	1	MANIFOLD, INLET, WATER	
17.	TS88414	1	MANIFOLD, INLET, AIR	
18.	TS88415	1	MANIFOLD, AIR	
19.	TS50000085	2	ANTI-VIBRATION	
20.	TS83189	2	WASHER, ANTI-VIBRATION	
21.	TS09102196	1	BUZZER	
22.	TS88416	1	MANIFOLD, INLET, AIR	
23.	TS88418	1	GASKET, AIR INLET MANIFOLD	
24.	TS05202721	-	TUBE R1 25X1000 A1 ORFS A1ORFS	
25.	TS88432	1	WATER TANK	
26.	TST00-4501-004	2	ANTI-VIBRATION	
27.	TS88442	1	SUPPORT ANTI-VIBRATION SX	
28.	TS88891	1	COMPRESSOR COVER	
29.	TS34006054	1	BELT	
30.	TS09101189	1	RELAY	
31.	TS88443	1	SUPPORT ANTI-VIBRATION DX	
32.	TS88446	2	MOUNTING BAR	
33.	TS09102054	1	HORN	
34.	TS88448	1	SUPPORT BAR SX	
35.	TS88449	1	SUPPORT BAR DX	
36.	TS36400502	-	COMPRESSOR	
37.	TS14311620	-	FAN BELT	
38.	TS17000024	-	ALTERNATOR	
39.	TS30703187	1	SEAL	
40.	TS40106030	38	BOLT M6 X 30 UNI 5737	
41.	106-388	38	FLAT WASHER D.6 UNI 6592	TS25010006
42.	TS25112006	38	LOCK WASHER D.6,4 UNI 1751	
43.	TS17000025	-	STARTER	
44.	TST00-4501-006	-	WASHER	
45.	TS14303351	-	FILTER, DIESEL	

NOT SHOWN:

REF. 884200

NOTE:

ENGINE INSTALLATION

HT220

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
46. TS14303350	-	FILTER, ENGINE OIL	
47. TS89001	1	SUPPORT, BOX POWER	
48. TS42716035	2	BOLT M6 X 35 5933	
49. TS30701250	1	RING ORM	
50. TS30701500	1	RING ORM	
51. TS05100031	1	TUBE RADIOR D.52/62	USE 1 @ 0.5mm
52. TS05100018	1	TUBE RADIOR D.45/54	USE 1 @ 0.5mm
53. TS05200772	-	TUBE R1 12 X 600 K1/2"-A1/2"	
54. TS89002	1	COVER PLATE	
55. 106-090	12	WASHER D. 10.5 UNI 1751	TS2501210
56. TS05305081	6	CLAMP	
57. TS40306015	2	BOLT M5 X 15 UNI 5739 8.8	
58. 106-388	14	WASHER D.6,4 UNI 1751	TS25010006
59. 106-106	2	NUT M6 UNI 5588	TS26210106
60. 106-540	4	BOLT M16 X 130 UNI 5737 8.8	TS40116130
61. TS25010017	41	WASHER D.17 UNI 6592	
62. TS26021016	16	NUT AUTOBL. M16	
63. 108-185	2	BOLT M14 X 110 5737	TS40114110
64. TS25112015	4	WASHER D.15 UNI 1751	
65. 106-074	4	BOLT M16 X 60 UNI 5737 8.8	TS40116060
66. TS25012017	41	WASHER D.17 UNI 1751	
67. 108-033	4	BOLT M20 X 45 D.17 UNI 5737 8.8	TS40120045
68. TS25012021	4	WASHER D.21 UNI 1751	
69. 106-627	9	WASHER D.21 UNI 6592	TS25010021
70. 105-271	24	BOLT M10 X 40 UNI 5739 8.8	TS40310040
71. TS25012008	40	WASHER D.8 UNI 1751	
72. 105-876	4	BOLT M10 X 35 UNI 5737 8.8	TS40110035
73. 105-247	15	BOLT M12 X 35 UNI 5737 8.8	TS40112035
74. 107-116	5	BOLT M16 X 35 UNI 5737 8.8	TS40116035
75. 105-998	8	BOLT M16 X 40 UNI 5737 8.8	TS40116040
76. TS25010013	24	WASHER D.13 UNI 6592	
77. TS25012013	12	WASHER D.13 UNI 1751	
78. 106-031	2	NUT AUTOBLNY M12 UNI 73Z	TS26021012
79. 106-078	8	NUT M8 UNI 5588	TS26210108
80. 105-245	20	BOLT M10 X 25 UNI 5737	TS40110025
81. 106-389	16	WASHER D.8 UNI 6592	TS25010008
82. TS25012008	2	WASHER D.8,4 UNI 1751	
83. 106-374	9	NUT M20 UNI 5588	TS26210120
84. 106-175	4	NUT M10 UNI 5588	TS26210110
85. 106-333	12	BOLT M12 X 40 UNI 5737 8.8	TS40112040
86. TS26021010	4	NUT AUTOBL. M10	
87. 105-271	4	BOLT M10 X 40 UNI 5737	TS40110040
88. 106-390	12	WASHER D.10 UNI 6592	TS25010010
89. TS26021014	2	NUT AUTOBL. M14	
90. TS05701012	1	NIPPLE 1/2" GAS M/M	

NOT SHOWN:

REF. 884200

NOTE:

ENGINE INSTALLATION

HT220

REF PART NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
91.	TS05802008	1	NIPPLE 1/2" GAS / M18 X 1.5	
92.	TS30500013	2	WASHER, COPPER D.1/2"	
93.	TS02201012	1	PLUG 1/2" FAS HEXAGON MALE	
94.	TSU42510070	8	BOLT 3/8-NC X 2.75" TEI 10.9	
95.	TS05305010	4	CLAMP Ø10.6 X 9	
96.	106-327	8	BOLT M8 X 30 UNI 5737	TS40108030
97.	TS40108010	1	BOLT M8 X 10 UNI 5737	
98.	TS36400907	-	PLUG X RADIATOR	
99.	TSIC 9154	-	MANIFOLD, AIR 90° (PREHEAT)	
100.	TS88457	1	CLAMP PLATE	
101.	TS89225	1	SUPPORT, FUSE	
102.	TST00-6600-118	-	FILTER CARTRIDGE	
103.	TS36400922	-	ELECTRICAL CONN.	
104.	TS26021010	4	NUT AUTOBL. M10	
105.	TS88456	1	CLAMP PLATE	
106.	TS88453	1	RUBBER SEAL	
107.	TS85114	1	SUPPORT, OIL SEAL	
108.	TS88460	-	PLUG, ALUMINUM X FILTER	
109.	TS505012	4	BOLT M5 X 12 UNI 5931 8.8	
110.	TS88452	1	RUBBER FLASHING	
111.	TS88458	1	CLAMP PLATE	
112.	TS21000245	-	PLUG, OF VENTS/LOAD COUPLER	
113.	TS88454	2	RUBBER FLASHING	
114.	TS88455	1	CLAMP PLATE	
115.	107-547	8	BOLT M16 X 75 UNI 5737 838	TS40116075
116.	TS86253	1	SUPPORT, COMPRESSOR	
117.	TS36401040	-	FILTER	
118.	TST00-6600-116	-	FILTER CARTRIDGE	
119.	TS30701000	2	RING ORM	
120.	TS30002070	2	LEVEL INDICATOR	
121.	TS89226	1	SUPPORT, CONNECTOR	
122.	TS09104152	1	GROMMET	
123.	TS05100008	1	TUBE, FLEXABLE, DIESEL Ø17.8	USE 1 @ 1.3M
124.	TS25010005	4	WASHER Ø6.4 UNI 1751	
125.	106-138	4	NUT M6 UNI 5588	TS26210105
126.	TS05700110	3	FITTING 1/4" GAS	
127.	TS05700100	-	NIPPLE 2 GAS 1-1/2 ORB	
128.	TS01240200	-	ELBOW 90° F/F 2" GAS ASA 2000	
129.	TS09102841	-	WATER LEVEL SENSOR 5V	
130.	TS89185	1	BATTERY DISCONNECT ASSEMBLY	
131.	TS88898	1	OIL LEVEL ASSEMBLY	
132.	TS05104836	1	TUBE, DOUBLE WATER, Di.7/De.12	
133.	TS05202851	-	TUBE, R1 19 X 900 A3/4JIC K3/4JIC	
134.	TS05700486	2	NIPPLE 3/4GAS 3/4JIC	

NOT SHOWN:

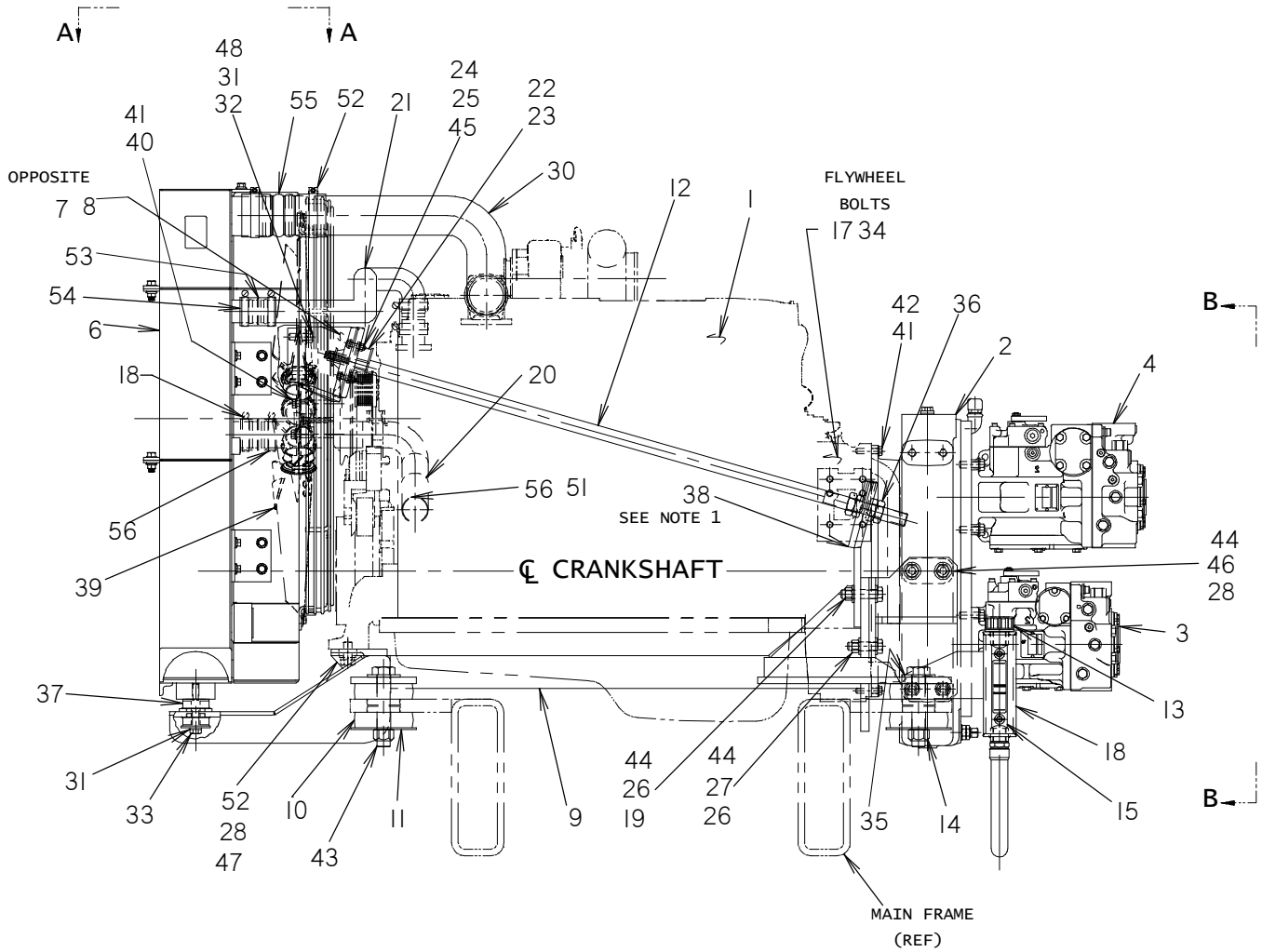
CLAMP R.G. RAY Ø76.2 3926702	SUPPLIED BY CUMMINS
ADAPTER Ø76.2	SUPPLIED BY CUMMINS
ADAPTER Ø88.9	SUPPLIED BY CUMMINS
CLAMP Ø88.9	SUPPLIED BY CUMMINS
CLAMP Ø73.9	SUPPLIED BY CUMMINS
FILTER	SUPPLIED BY CUMMINS

NOTE:

TESMEC REF. 88420

ENGINE, PUMPS & RADIATOR INSTALLATION

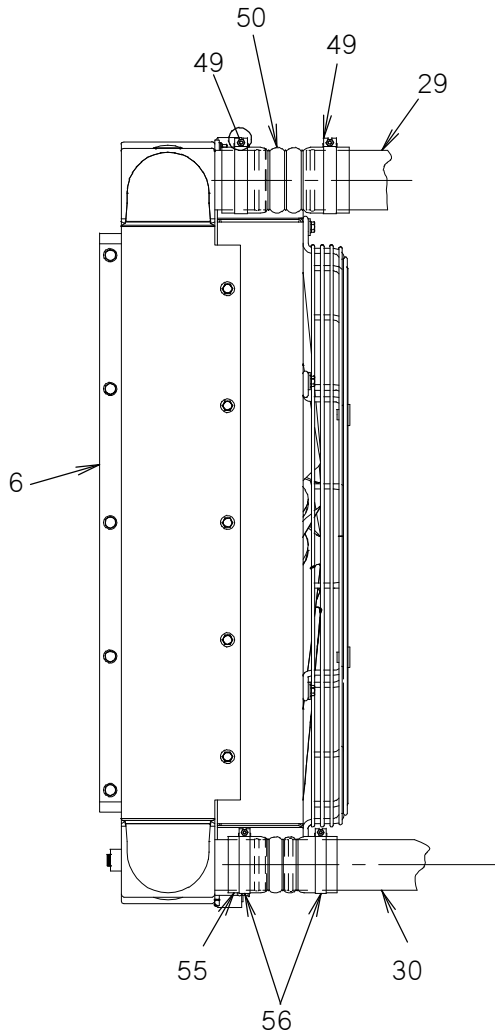
HT220
 BEGINS WITH S/N CMWHT220J80000012



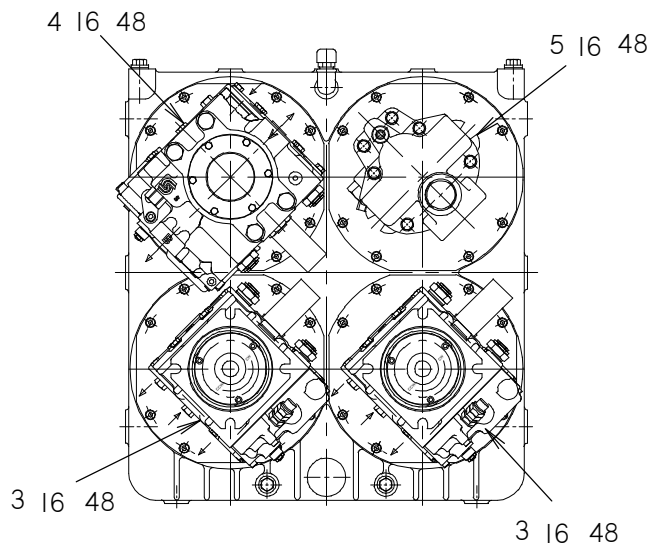
NOTE :

1. TO BE WELDED @ ASSEMBLY BY TESMEC.

ENGINE, PUMPS & RADIATOR INSTALLATION
 HT220
 BEGINS WITH S/N CMWHT220J80000012



VIEW A-A



VIEW B-B

ENGINE, PUMPS & RADIATOR INSTALLATION

HT220

BEGINS WITH S/N CMWHT220J80000012

REF PART NO.	QTY	DESCRIPTION	REMARKS
1. TST00-4500-045	1	ENGINE, CUMMINS QSB 6.7, 220HP	
2. TST00-4500-526	1	4-PUMP DRIVE, STIEBEL	
3. TST00-6000-080	2	SAUER 90 SERIES PUMP 55CC	
4. TST00-6000-079	1	SAUER 90 SERIES PUMP 100CC	
5. TST00-6000-078	1	PARKER PAVC 65 SERIES PUMP	
6. TST00-4500-381	1	COOLING UNIT ASSEMBLY	
7. TS4500-004	1	RAD. SUPPORT BRKT, R/H	
8. TS4500-005	1	RAD. SUPPORT BRKT, L/H	
9. TS4500-001	1	ENG. SUPPORT FRAME WLDMNT	
10. TST00-4501-002	8	MOTOR MOUNT, LORD CBB45-2-9	
11. TST00-4501-003	4	LORD WASHER J2049-73	
12. TS365-4500-403	2	MOUNT BAR, RADIATOR	
13. TST00-8600-182	1	FILLER CAP, ELECA	
14. 105-367	4	LOCKNUT (1-8 UNC)	
15. TST00-8600-181	1	COLUMN LEVEL INDICATOR	
16. 106-333	14	HHCS (M12-1.75 X 40mm) GR 8	
17. 106-400	8	HHCS (3/8-16 UNC X 2-3/4") GR 8	
18. TS4600-001	1	OIL LEVEL INDICATOR MOUNT	
19. 500-003	4	HHCS (5/8-11 UNC X 2-3/4")	
20. TS4500-008	1	ELBOW, RAD. TO ENG., LOWER	
21. TS4500-007	1	ELBOW, RAD. TO ENG., UPPER	
22. TST00-4501-006	2	LORD WASHER J2049-4	
23. TST00-4501-004	2	LORD MOUNT 283P310	
24. 105-160	8	HHCS (5/16-18 UNC X 1-1/4")	
25. 105-089	8	LOCKNUT (5/16 UNC)	
26. 105-357	8	LOCKNUT (5/8-11 UNC)	
27. 105-162	4	HHCS (5/8-11 UNC X 2-1/4")	
28. 105-385	9	LOCK WASHER (5/8")	

NOT SHOWN:

TST4500-017	1	PUMP FILTER MOUNT BRACKET	
TST00-8600-183	1	COOLANT LEVEL SENSOR	
TS4500-016	1	BOTTOM AND SINGLE FILTER BRACKET	
TS4500-015	1	WATER FUEL SEPARATOR BRACKET	
TS4500-014	1	FRONT ENGINE OIL FILTER BRACKET	
TS4500-050	1	SURGE TANK INSTALLATION	
500-1783	1	FILTER ELEMENT, SPIN-ON	TST00-6600-116
TST00-6600-134	1	FILTER HEAD, SINGLE	
TST00-6600-135	3	SWITCH, FILTER HEAD	
500-1784	2	FILTER ELEMENT, SPIN-ON	TST00-6000-118
TST00-6600-133	2	FILTER HEAD, SINGLE	

FOOTNOTES:

NOTE:

TESMEC REFR. NUMBER: 285-4500-000

ENGINE, PUMPS & RADIATOR INSTALLATION

HT220

BEGINS WITH S/N CMWHT220J80000012

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
29. TS4500-010	1	ELBOW, TURBO TO RADIATOR	EXHAUST SIDE
30. TS4500-009	1	ELBOW, TURBO TO RADIATOR	FUEL PUMP SIDE
31. 105-070	6	LOCK WASHER (1/2")	
32. TST89-8901-407	4	HHCS (1/2-13 UNC X 1-1/2")	WITH DRILLED HOLE IN BOLT HEAD
33. 105-136	2	HHCS (1/2-13 UNC X 3-1/2")	
34. 105-118	8	FLAT WASHER (3/8")	
35. 105-329	4	FLAT WASHER (1")	
36. 106-033	8	JAMNUT (1-8 UNC)	
37. TST00-4501-015	2	LORD MOUNT SSB20-1000-4	
38. TS4500-006	2	ADJUSTMENT BAR MOUNT ARM	
39. TST00-4500-382	1	FAN, 31.5" DAI., SUCTION	
40. 106-206	4	HHCS (M10-1.5 X 90mm) GR8.8	
41. 106-090	16	LOCK WASHER (M10)	
42. 105-996	12	HHCS (M10-1.5 X 45mm) GR8.8	

NOT SHOWN:

FOOTNOTES:

NOTE:

PARTS SHOWN FOR REFER. ONLY:

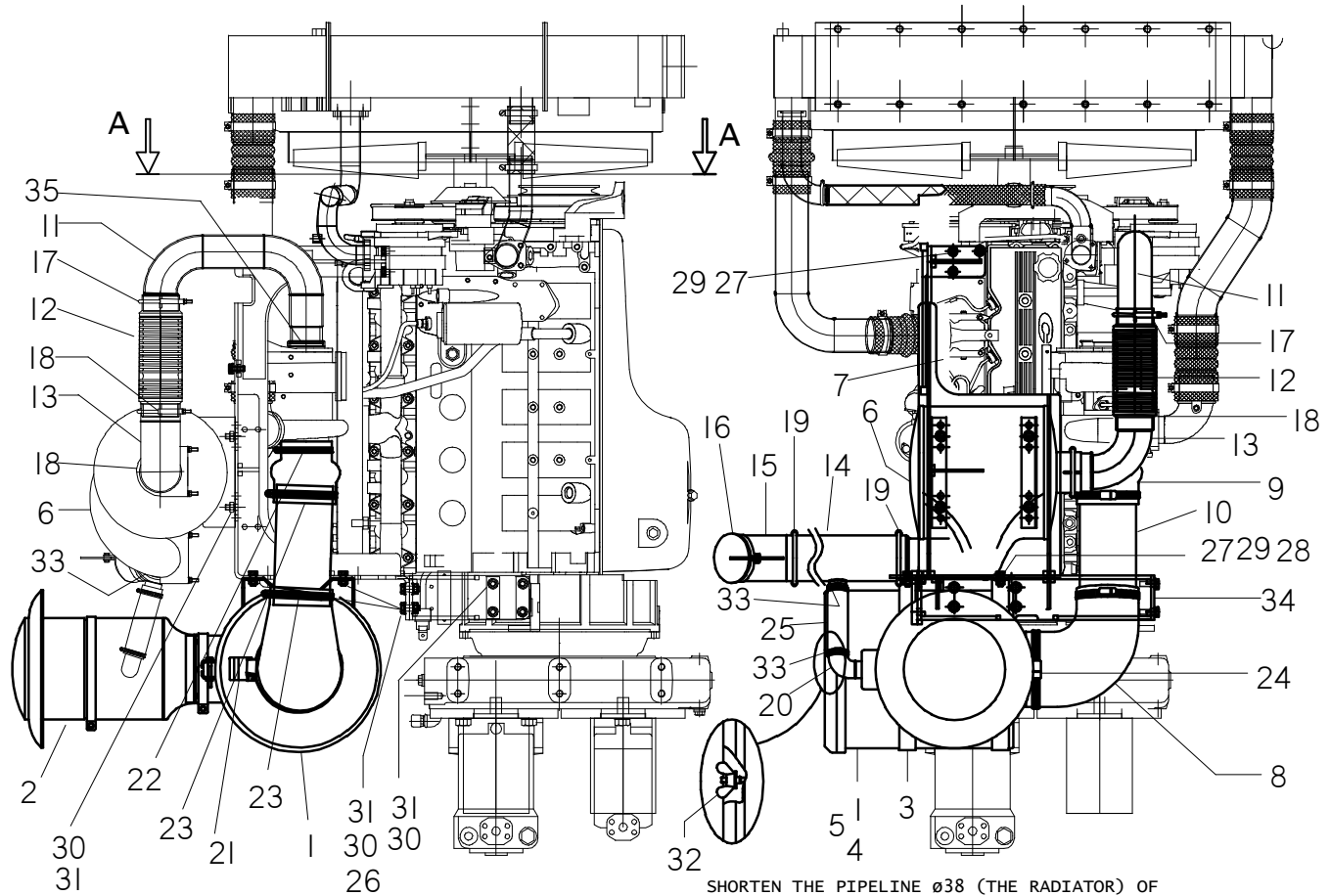
43.	HHCS (1-8 UNC X 5-1/2") GR8	(4X)
44.	FLAT WASHER (5/8") F436	(25X)
45.	FLAT WASHER (5/16") HARDENED F436	(16X)
46.	HHCS (M16-2 X 45mm) GR8.8	(8X)
47.	HHCS (M16-2 X 35mm) GR8.8	(1X)
48.	FLAT WASHER (1/2") HARDENED F436	(18X)

PARTS SUPPLIED BY CUMMINS. REFER TO BULLETIN #E011907

49.	CLAMP, CONSTANT TORQUE (3-1/2" HOSE)
50.	HOSE 3-1/2" I.D. (CHARGE AIR)
51.	HOSE CLAMP (2")
52.	CLAMP, CONSTANT TORQUE (3" HOSE)
53.	HOSE 1-3/4" I.D. (WATER LINE)
54.	HOSE CLAMP (1-3/4")
55.	HOSE 3" I.D. (CHARGE AIR)
56.	HOSE 2" I.D. (WATER LINE)

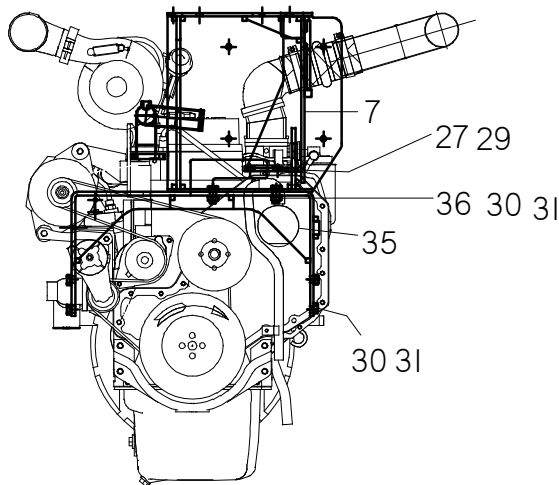
TESMEC REFR. NUMBER: 285-4500-000

SILENCER & AIR CLEANER ASSEMBLY HT220



VIEW "A"

SHORTEN THE PIPELINE $\varnothing 38$ (THE RADIATOR) OF WHAT IS NECESSARY TO THE POSITIONING OF THE CURVE $90^\circ \varnothing 38$.
(SOLDER TO MOUNT)



NOTE:

WRAP COLLECTOR OF TURBINE EXHAUST WITH FIBERGLASS STRIP (NOT SHOWN SECTION).
WELD THE INTERMEDIATE JUNCTION OF ITEM 11. (AT ASSEMBLY)
POSITION ITEMS 25 & 20 SO THAT THERE IS NO FORCE-FIT REQUIRED AT ASSEMBLY.

SILENCER & AIR CLEANER ASSEMBLY

HT220

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1.TS36400805	1	AIR CLEANER, DBL FILTER	
2.TS36400806	1	PRE-CLEANER	
3.TST00-4500-948	2	AIR FILTER SUPPORT	
4.500-1797	-	AIR FILTER-PRIMARY	TS36400809
5.500-1796	-	AIR FILTER-SECONDARY	TS36400810
6.TS83694	1	SILENCER, MODIFIED	
7.TS88421	1	SUPPORT, SILENCER & AIR CLNR.	
8.TS36400813	1	ELBOW 90°, RUBBER	
9.TS36400026	1	ADAPTER, RUBBER	
10.TS85222	1	INTAKE TUBE	
11.TS89307	1	SILENCER TUBE	
12.TS88433	1	FLEX JOINT	
13.TS84695	1	SILENCER ELBOW	
14.TS83894	1	SILENCER TUBE, MODIFIED	
15.TS83313	1	ELBOW 45° MODIFIED	
16.TS13210011	1	RAIN CAP	
17.TS05309019	1	BAND CLAMP	
18.TS05309017	1	BAND CLAMP	
19.TS05309016	1	BAND CLAMP	
20.TS01242038	1	ELBOW 90° D.38	
21.TS36400940	1	ELECTRIC CONNECTOR 501-02	
22.TS05309026	1	BAND CLAMP	
23.TST004500988	2	BAND CLAMP	
24.TST004500987	1	BAND CLAMP	
25.TS36400865	1	TUBE	
26.TS88431	1	SUPPORT, SILERNCER & AIR CLNR.	
27.105-245	7	HHCS M10 X 25 UNI 5737 8.8	TS40110025
28.106-175	4	HEX NUT M10 UNI 5588	TS26200110
29.106-090	11	LOCK WASHER D.10.5 UNI 1751	TS25012010
30.107-341	16	HHCS M12 X 30 UNI 5737 8.8	TS40112030
31.106-030	16	LOCK WASHER D.12 UNI 1751	TS25012012
32.TS83840		WING NUT	
33.TS05305083	2	BAND CLAMP	
34.106-089	4	HEX NUT M12 UNI 5588	TS26200112

NOT SHOWN:

TS36400760	1	FIBERGLASS STRIP	USE 1 @ 3M
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FOOTNOTES:

NOTE:

PARTS DISPLAYED FOR REFERENCE ONLY:

35. 1 CLAMP

PROVIDED BY CUMMINS

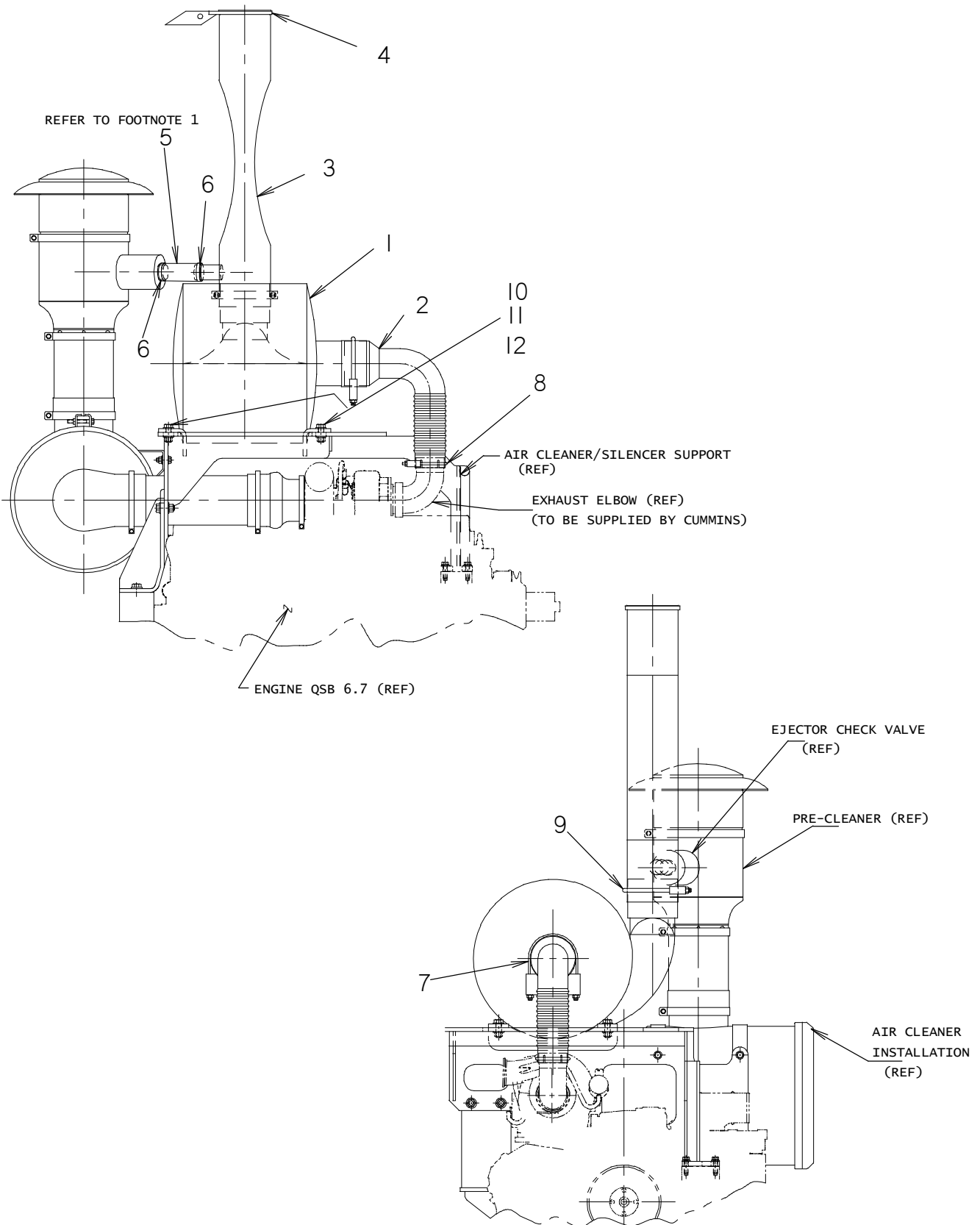
TESMEC REF. 884190

03

ID0183128

SILENCER ASSEMBLY

HT220
BEGINS WITH S/N CMWHT220J80000012



SILENCER ASSEMBLY

HT220

BEGINS WITH S/N CMWHT220J80000012

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TS4502-001	1	SILENCER MODIFICATION	
2. TST00-4500-879	1	EXHAUST JOINT CONNECTOR	WITH BELLOW
3. TST00-4500-875	1	EXHAUST EJECTOR, STANDARD	DONALDSON
4. TST00-4500-911	1	RAIN CAP, 5" DIA.	
5. TST00-4500-876	1	SCAVENGE HOSE	SEE FOOTNOTE 1
6. TST00-4500-877	2	LINED HOSE CLAMP	
7. TST00-4500-844	1	FLAT BAND CLAMP (4-1/2" DIA)	
8. TST00-4500-899	1	U-BOLT SADDLE CLAMP (3" DIA)	
9. TST00-4500-912	1	FLAT BAND CLAMP (5" DIA)	
10. 105-048	4	HHCS (1/2-13 UNC X 1-1/2")	
11. 105-065	4	LOCKNUT (1/2-13 UNC)	
12. 107-605	8	FLAT WASHER (1/2") HARDENED, F436	

NOT SHOWN:

FOOTNOTES:

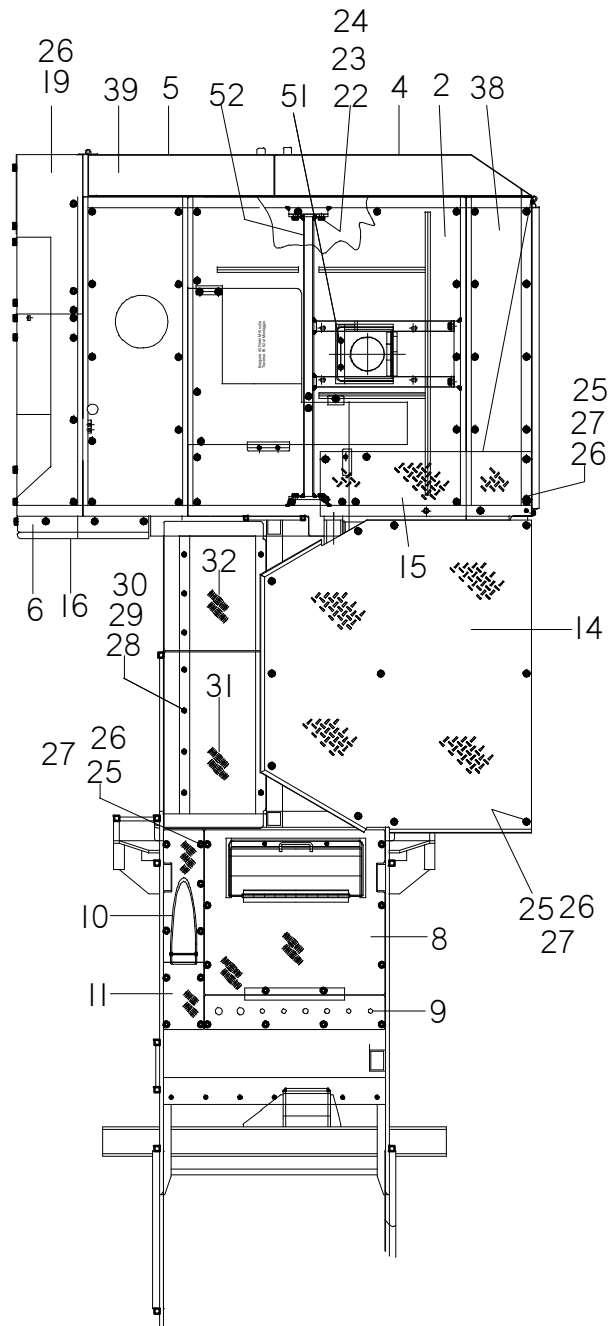
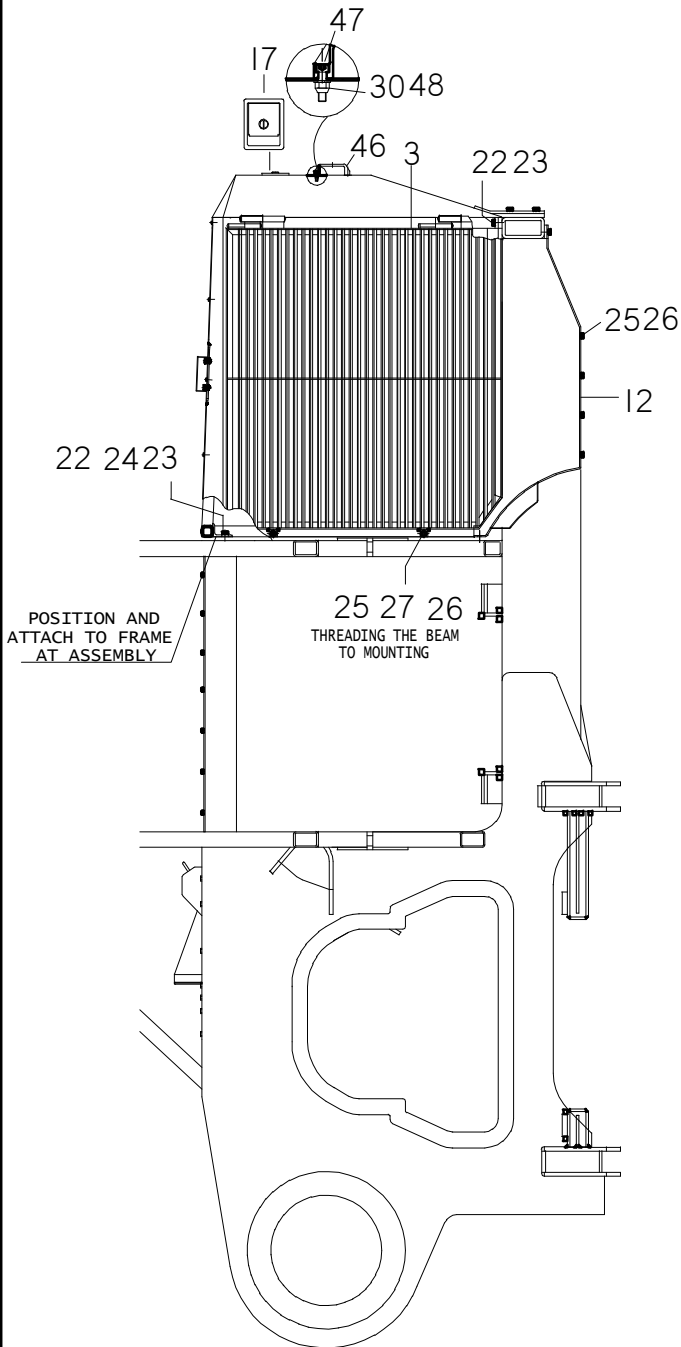
- I. REF. #5, TST00-4500-876, TO BE SHORTENED AS NEEDED FOR PROPER INSTALLATION.

NOTE:

REF. 285-4502-000

COVER ASSEMBLY HT220

OPERATOR SIDE VIEW



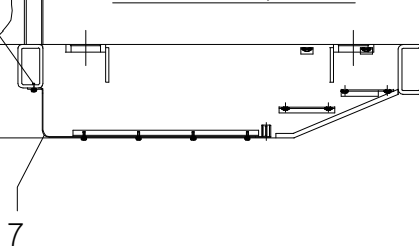
NOTE:
PRIOR TO ASSEMBLING THE ENGINE COVERS
ENSURE THAT THE COATING HAS BEEN APPLIED
PER THE SPECIAL DRAWING COD. 050404017.
ALSO ENSURE THAT THE SEAL ITEM 20 IS
INSTALLED ON ITEMS 4 & 5.

COVER ASSEMBLY HT220

33 CUT IN THIS POSITION (N.2 Pz)

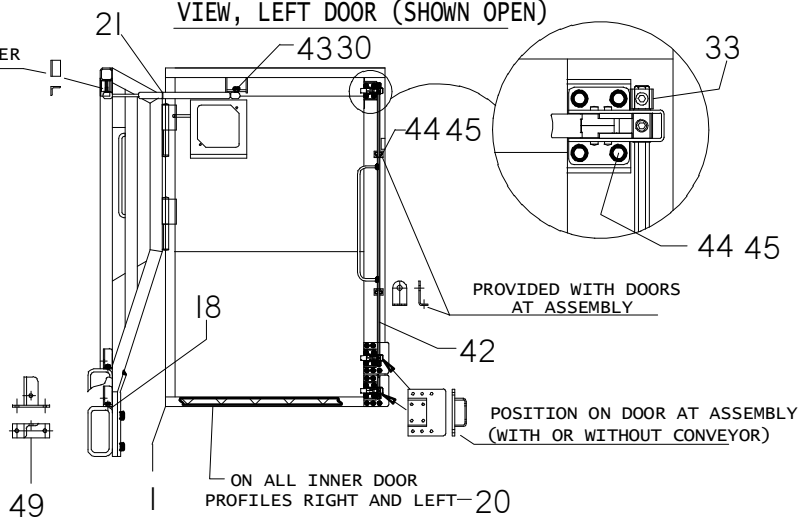
ATTACH TO BEAM AT ASSEMBLY

INSIDE VIEW, LOWER

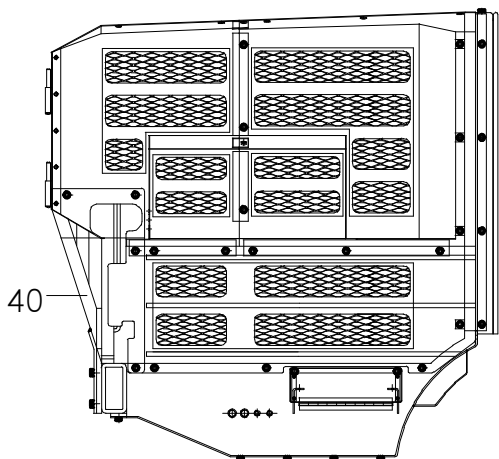


VIEW, LEFT DOOR (SHOWN OPEN)

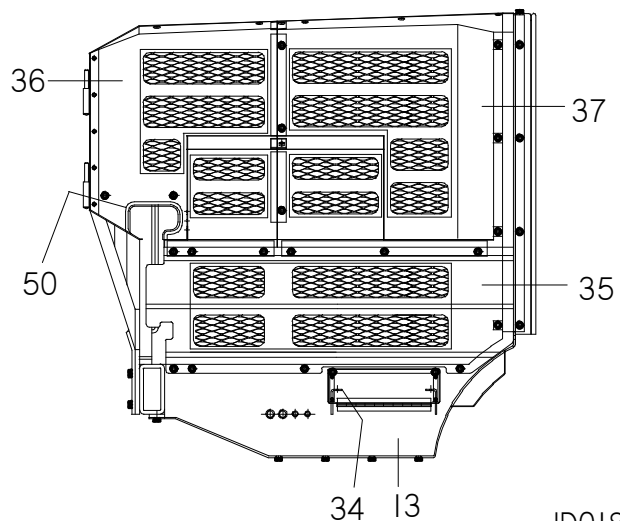
SUPPLIED WITH COVER



LEFT VIEW (WITHOUT SIDE CONV.)



LEFT VIEW (WITH SIDE CONV.)



COVER ASSEMBLY

HT220

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TS88445	1	DOOR FRAME, FRONT	
2. TS88434	1	TOP COVER, MAIN	
3. TS84679	1	DOOR, RADIATOR	
4. TS85354	1	DOOR, FRONT SX	
5. TS85355	1	DOOR, FRONT DX	
6. TS86241	1	PROFILE COVER	
7. TS85261	1	ENGINE COVER	
8. TS84586	1	COVER, CENTER, VALVE	
9. TS89222	1	COVER, BULKHEAD	
10. TS84666	1	COVER, TUBE ROUTING	
11. TS83758	1	COVER PLATE	
12. TS85263	1	COVER, BOTTOM DX	
13. TS89223	1	COVER, BOTTOM SX	
14. TS83264	1	COVER, CAB	
15. TS83266	1	COVER, CONDENSER	
16. TS30920021	1	SEAL, RUBBER	USE 1 @ 2M
17. TS34014022	1	PADDLE LATCH	
18. TS40706016	3	BOLT M6 X 20 TE 2093616 WURT	
19. TS40310015	77	BOLT M10 X 15 UNI 5739	
20. TS30921203	1	FLAT SEAL	USE 1 @ 8M
21. TS15983895	2	GAS SPRING	
22. 105-273	13	BOLT M12 X 30 UNI 5739 8.8	TS40312030
23. TS25012013	13	LOCK WASHER D.13 UNI 1751	
24. TS25010013	9	FLAT WASHER D.13 UNI 6592	
25. 105-274	76	BOLT M10 X 20 UNI 5739 8.8	TS40310020
26. 106-090	137	LOCK WASHER D.10.5 UNI 1751	TS25012010
27. 106-390	60	FLAT WASHER D.10.5 UNI 6592	TS25010010
28. 106-083	16	BOLT M8 X 20 UNI 5739 8.8	TS40308020
29. TS25012008	16	LOCK WASHER D.8.4 UNI 1751	
30. 106-389	16	FLAT WASHER D.8.4 UNI 6592	TS25010008
31. TS84664	1	COVER, TOP	
32. TS84665	1	COVER, TOP	
33. TS34014028	2	COLLAR, HEX	
34. 107-402	2	BOLT M6 X 50 5931 8.8	TS40506050
35. TS86285	1	COVER SX (LOWER)	
36. TS88439	1	COVER SX (REAR)	

NOT SHOWN:

FOOTNOTES:

NOTE:
REF. 884270

COVER ASSEMBLY

HT220

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
37. TS88438	1	COVER SX (REAR)	
38. TS88436	1	COVER (RIGHT HAND)	
39. TS88435	1	COVER (LEFT HAND)	
40. TS86288	1	COVER, CYLINDER	
41. TS34014026	2	GROUP, CLOSING M3-50	
42. TS85675	1	LATCH, MANUAL	
43. 106-078	3	NUT M8 UNI 5588	TS26200108
44. TS40305012	18	BOLT M5 X 12 UNI 5739 8.8	
45. TS26061005	18	NUT AUTOBL. NYLON M5	
46. TS30003033	2	HANDLE	
47. 105-892	4	BOLT M8 X 30 UNI 5931	TS40508030
48. 107-096	4	NUT AUTOBL. NYLON M8	TS26021008
49. TS85906	1	DOOR STOP	
50. TS36400854	1	TRIM	USE 1 @ 0.4M
51. TS30001036	2	HANDGRIP, KNURLED M6 X 16	
52. TS89267	1	SUPPORT	

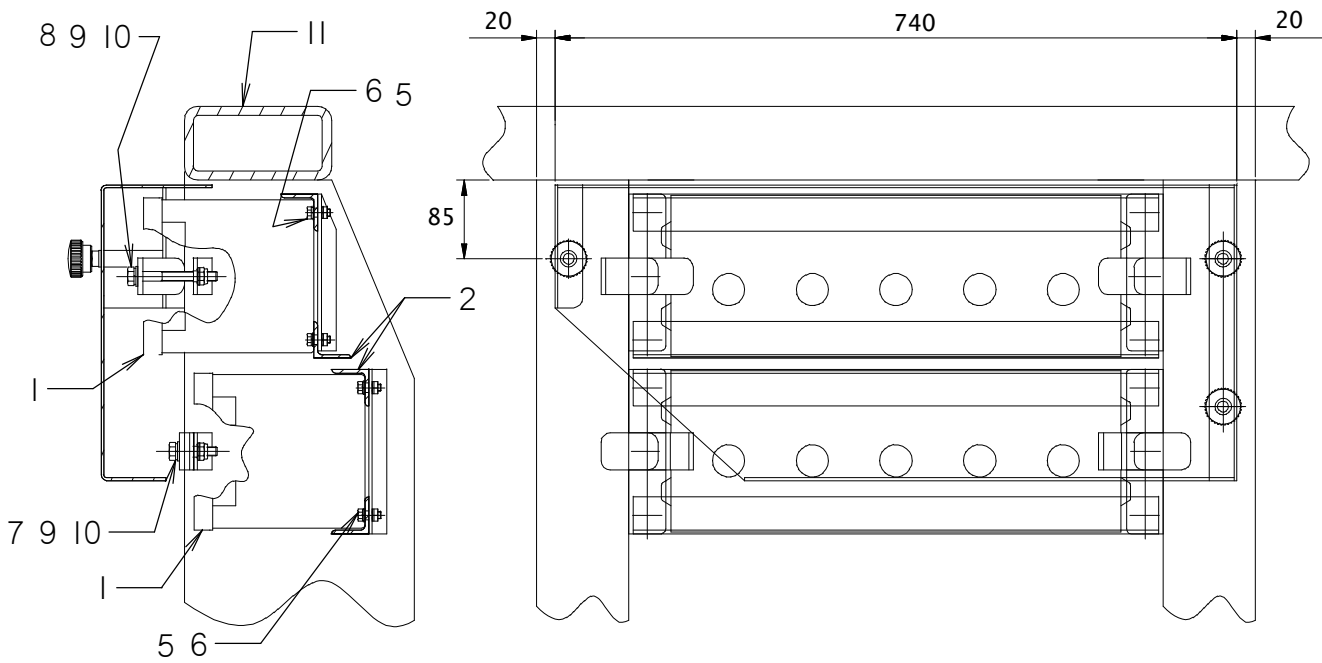
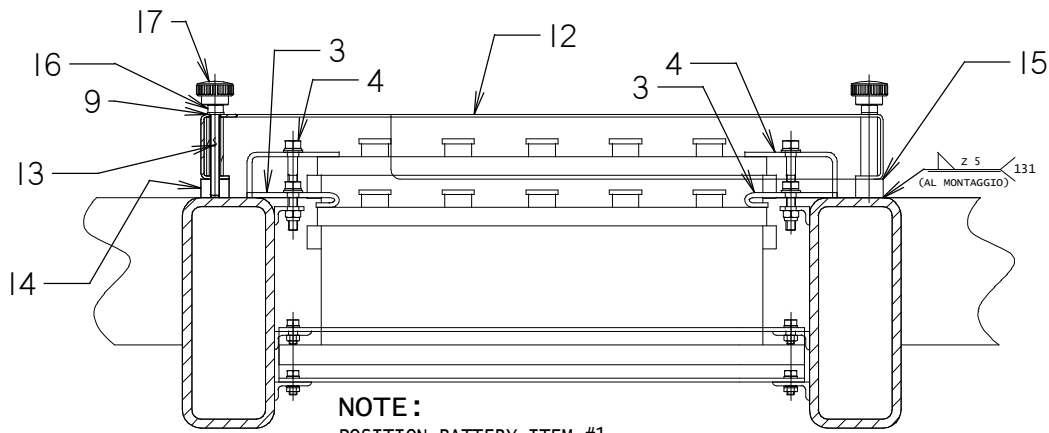
NOT SHOWN:

FOOTNOTES:

NOTE:
REF. 884270

BATTERY ASSEMBLY

HT220



BATTERY ASSEMBLY

HT220

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TS48100617	-	BATTERY SAEM 12V 140AH	
2. TS84626	4	SUPPORT	
3. TS84623	2	CLAMP, REAR	
4. TS84624	2	CLAMP, FRONT	
5. 107-349	8	HHCS M8X20 UNI 5737 8.8	TS40108020
6. TS25012008	8	LOCK WASHER D.8.4 UNI 1751	
7. 105-996	2	HHCS M10X45 UNI 5737 8.8	TS40110045
8. 106-206	2	HHCS M10X90 UNI 57.7 8.8	TS40110090
9. 106-390	7	FLAT WASHER D.10.5 UNI 6592	TS25010010
10. 106-090	4	LOCK WASHER D.10.5 UNI 1751	TS25012010
11. TS84549	-	MAINFRAME	
12. TS85109	1	COVER	
13. TS85112	3	ROD	
14. TS85110	1	TAPPED PLATE (X1 POS)	
15. TS85111	1	TAPPED PLATE (X2 POS)	
16. 106-175	3	HEX NUT M10 UNI 5588	TS26200110
17. TS30001052	3	GRIP	

NOT SHOWN:

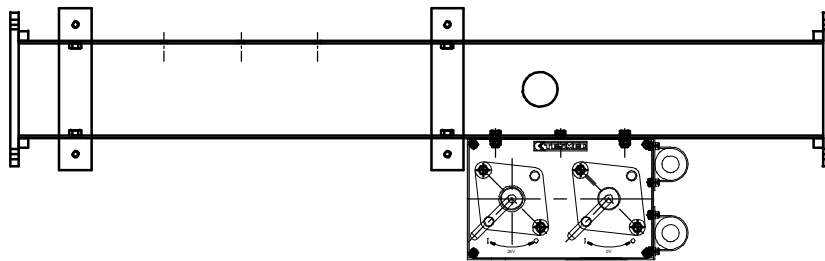
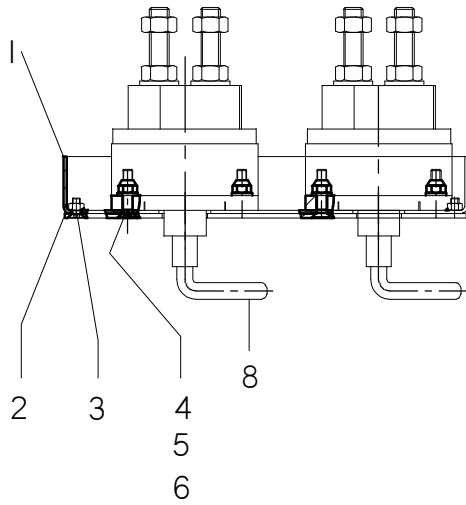
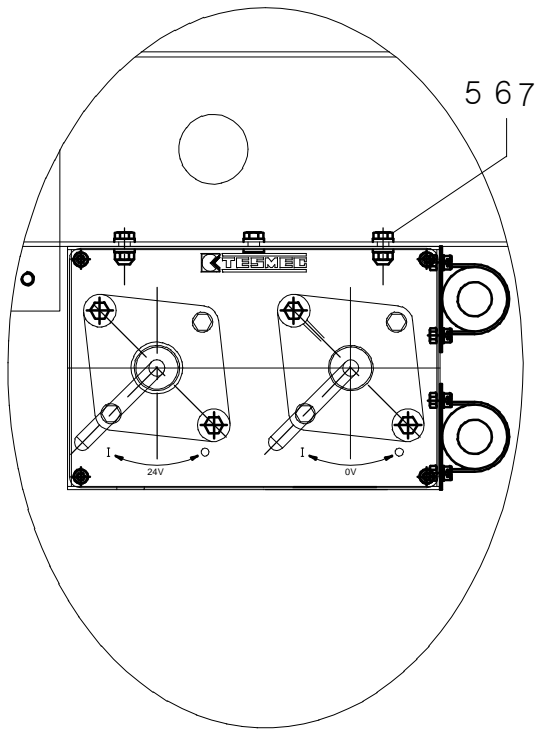
FOOTNOTES:

NOTE:

REF. 846310

BATTERY DISCONNECT

HT220



BATTERY DISCONNECT

HT220

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TS89184	1	SUPPORT	
2. TS89186	1	PANEL	
3. TS46705012	4	BOLT M5 X 12 5933	
4. TS46706030	4	BOLT M6 X 30 5933	
5. TS25110006	10	WASHER D 6.4 X 12.5 UNI 6592 Z	
6. 106-237	7	NUT AUTOBL.NY M6 UNI 7473 Z	TS26021006
7. 105-688	3	BOLT M6 X 35 5739 8.8 Z	TS41306035
8. TS09104160	-	SWITCH	

NOT SHOWN:

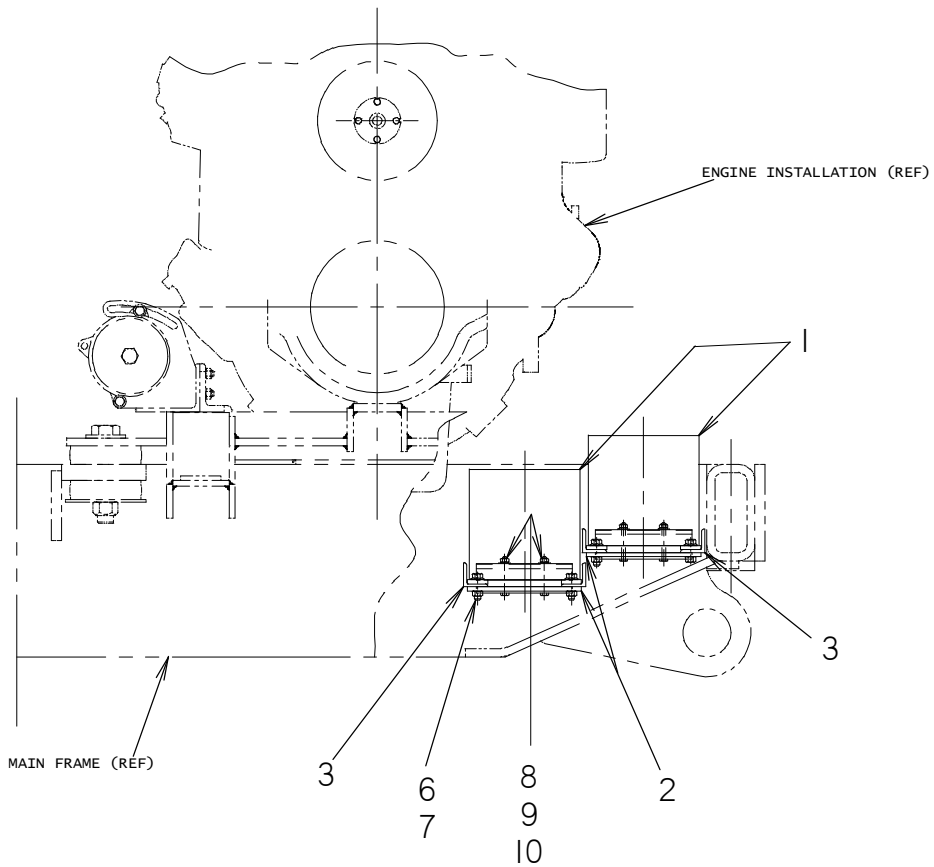
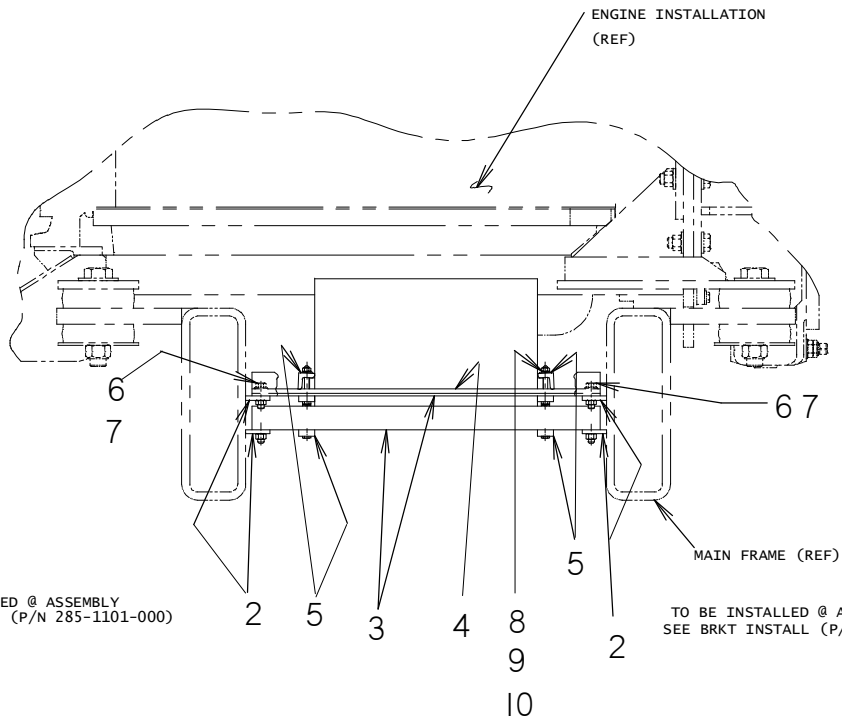
FOOTNOTES:

NOTE:

REF. 891850

BATTERY INSTALLATION

HT220
BEGINS WITH S/N CMWHT220J80000012



BATTERY INSTALLATION

HT220

BEGINS WITH S/N CMWHT220J80000012

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TST00-4700-005	2	BATTERY	
2. TS1500-003	-	BOLTING BAR, BATTERY	
3. TS1500-001	4	BATTERY MOUNTING ANGLE	
4. TS1500-004	4	MOUNT RUBBER, BATTERY	
5. TS1500-002	4	BATTERY MOUNTING CLAMP	
6. 105-677	8	FLG SCREW (3/16-NC X 1-1/4")	
7. 105-047	8	LOCKNUT (3/8-16NC)	
8. 105-078	8	NUT (1/4-20NC)	
9. 105-095	8	FLAT WASHER (1/4")	
10. 105-079	8	LOCK WASHER (1/4")	

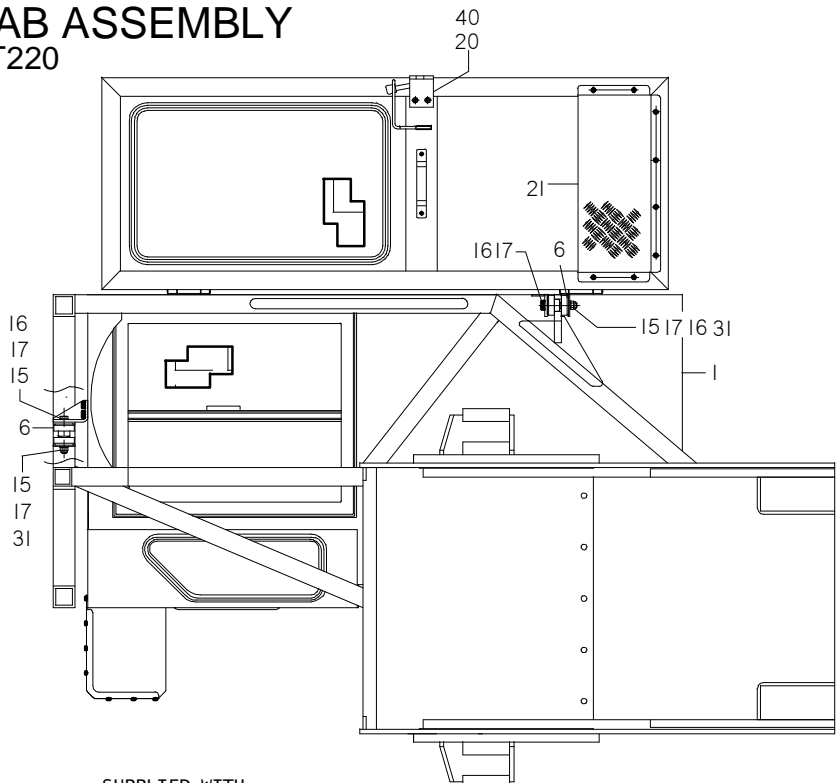
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FOOTNOTES:

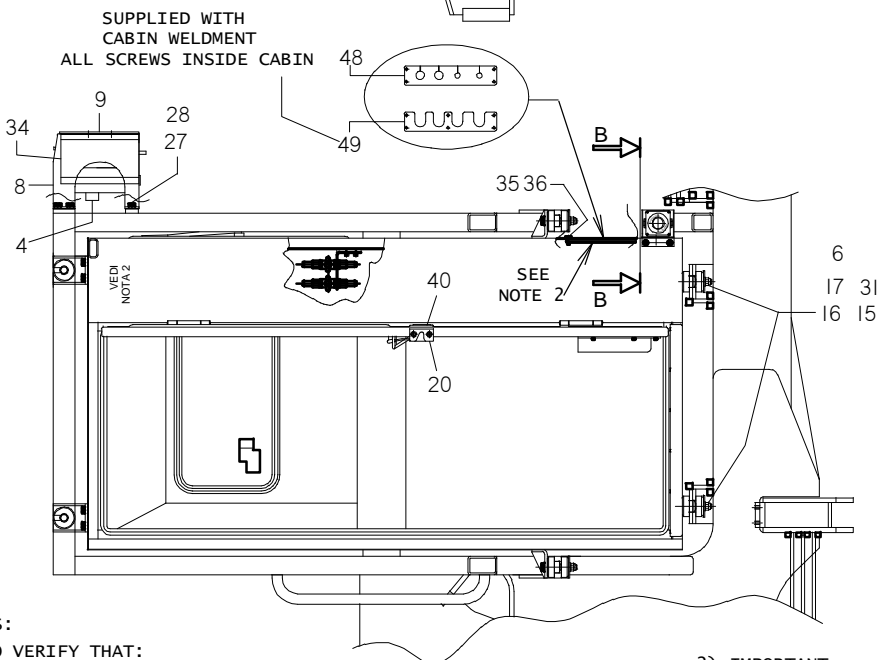
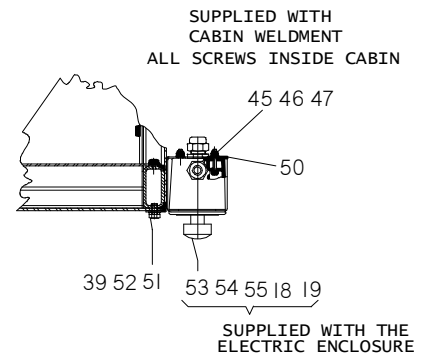
NOTE:

REF. 285-1500-000

CAB ASSEMBLY HT220



SECTION B-B



NOTES:

1) TO VERIFY THAT:

- tubular frame weldments min z4.
- covering sheet metal weldments outside min z3.
- there are to be no openings in the outside covers that allow dust or water to penetrate the inside of the cab.
- the evaporator box is sealed.
- between the filters and the sheet metal there is a seal Sp. 3mm to reduce side contamination..
- the cab handle is positioned in a manner that its operation does not need to be forced (opening and closing).
- the sheet metal lower door and roof panels of the cab are put on with adhesive seal.
- the trim (or other) between the mobile glass of the opening window seals the passage of dust.
- the fit of the tubes are matched with the pressuriser (code 36401114).
- the tubes of the pressurizer are sealed.

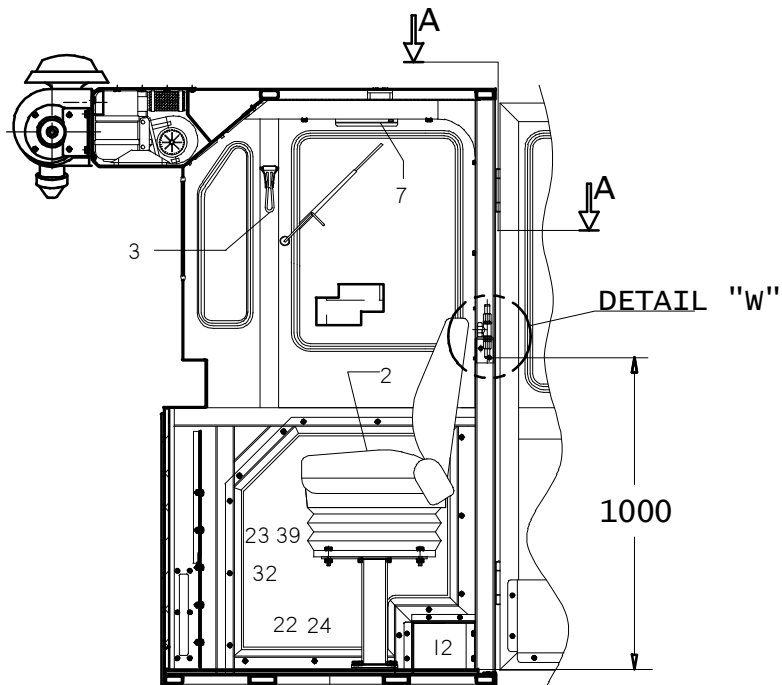
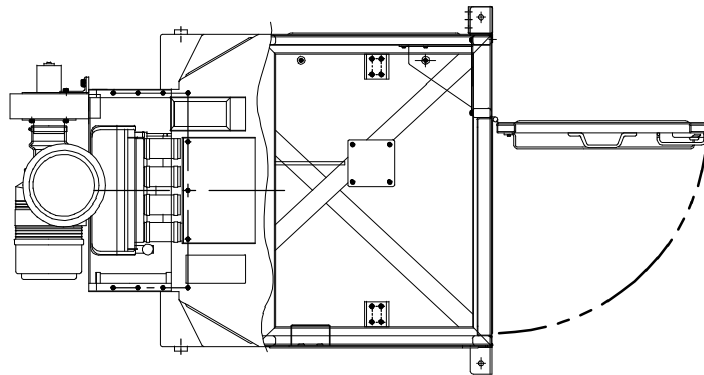
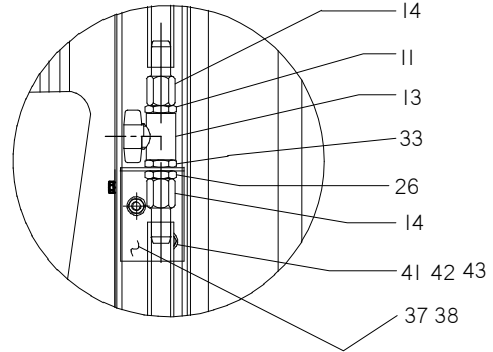
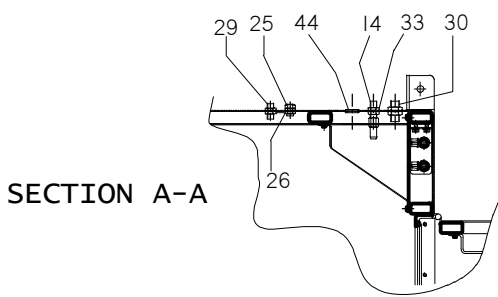
2) IMPORTANT:

- seal all holes used for the passage of electric cables with foam sealer in manner that no dust will infiltrate the cab.

CAB ASSEMBLY

HT220

"DETAIL W"



CAB ASSEMBLY

HT220

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TS88402	1	CAB	
2. TS30003070	1	SEAT	
3. TS36401829	-	HAMMER	
4. TS88408	1	AIR CONDITIONER	
5. TS88475	1	PRESSURIZER ASSEMBLY	
6. TS50000085	6	VIBRATION ISOLATORS	
7. TS09102310	-	LIGHT	
8. TS83265	1	SUPPORT, CONDENSER	
9. TS82988	1	GRILL, CONDENSER	
10. TS09102074	-	LAMP 24V 21W	
11. TS05701038	2	NIPPLE 3/8 GAS	
12. TS83867	-	SUPPORT, SEAT	
13. TS01600147	2	VALVE 3/8"	
14. TS83312	6	FITTING, BRASS	
15. TS83189	8	WASHER	
16. 108-185	6	HHCS M14 X 110 UNI 5737 8.8	TS40114110
17. TS25010015	12	FLAT WASHER D.15 UNI 6592	
18. TS09103181	-	BASE + CONTACT -NC	
19. TS09103190	-	PRESSED NYLON PG16	
20. TS36400911	-	INSIDE HANDLE SX	
21. TS83355	-	GLOVE COMPARTMENT	
22. 105-245	4	HHCS M10 X 25 UNI 5737 8.8	TS40110025
23. 106-329	4	HHCS M18 X 50 UNI 5737 8.8	TS40108050
24. TS25112010	4	LOCK WASHER D.10.5 UNI 1751	
25. TS09102626	1	PRESSED RTA 3/8 84003	
26. TS25003013	1	RING NUT RTA 3/8 86602	
27. 107-521	14	HHCS M12 X 20 UNI 5737 8.8	TS40112020
28. 106-030	14	LOCK WASHER D.12 UNI 1751	TS25012012
29. TS36401254	-	FITTING G 06	

NOT SHOWN:

FOOTNOTES:

NOTE:
REF. 884010

CAB ASSEMBLY

HT220

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
30. TS36401252	-	FITTING G10	
31. TS26021014	6	NUT M14 AUTOBL.	
32. 106-078	4	NUT M8 UNI 5588 8.8	TS26200108
33. TS05700216	2	NIPPLE 3/8 GAS 3/8 JIC	
34. TS83583	1	FILTER CONDENSER	
35. 107-322	8	SHCS M6 X 25 UNI 5931	TS40506025
36. 106-388	8	WASHER D.6.4 UNI 6592	TS25010006
37. TS88407	-	SUPPORT, DRAIN	
38. TS63080010	-	PLATE Sp. 10 X 55 X 80	
39. TS25012008	10	WASHER D.8.4 UNI 1751	
40. TS36400782	-	HANDLE LATCH	
41. TS40308015	-	HHCS M8 X 15 LG. UNI 5739 8.8	
42. TS25112008	-	LOCK WASHER ø8.4 UNI 1751	
43. TS25110008	-	WASHER ø8.4 X 17 UNI 6592 Z	
44. TS09101382	1	GROMMET HDG29	
45. 106-733	4	HHCS M5 X 30 UNI 5739 8.8	TS40305030
46. TS25010005	4	WASHER ø5.3 X 10 UNI 6592	
47. TS26021005	4	HEX LOCK NUT NY M5 UNI 7473 Z	
48. TS89180	1	SEAL DX	
49. TS89182	-	CLAMP PLATE DX	
50. TS89194	-	E-STOP SUPPORT	
51. TS40308010	2	HHCS M8 X 15 LG UNI 5739 8.8	
52. TS25110008	2	WASHER ø8.4 X 17 UNI 6592 Z	
53. TS09103179	-	SWITCH	
54. TS09103180	-	ENCLOSURE	
55. TS09100941	-	LABEL, STOP	

NOT SHOWN:

TS30003059	1	FIRE EXTINGUISHER
TS05200770	1	TUBE R11 10 X 1300 K3/8 A3/8
TS05200749	1	TUBE R1 10 X 700 K3/8 A3/8

FOOTNOTES:

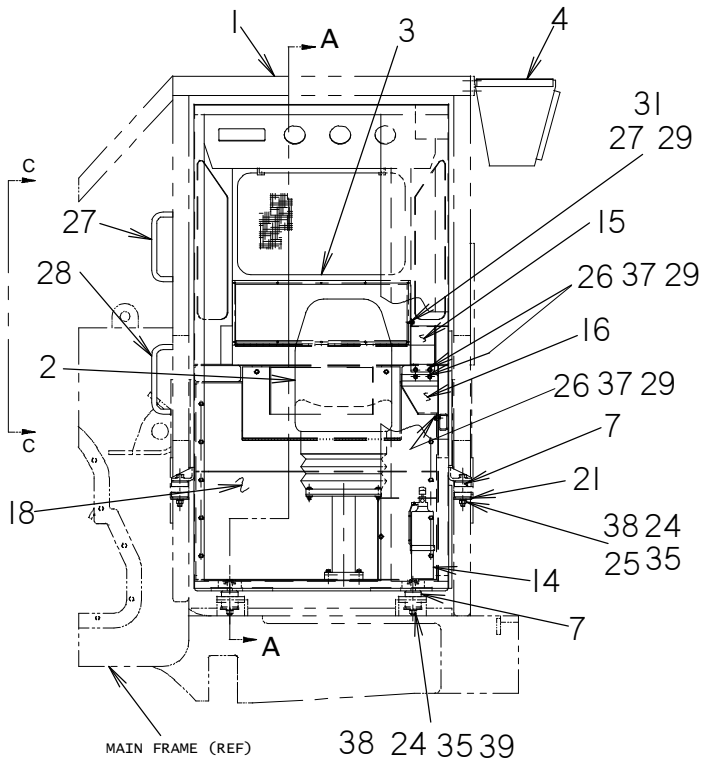
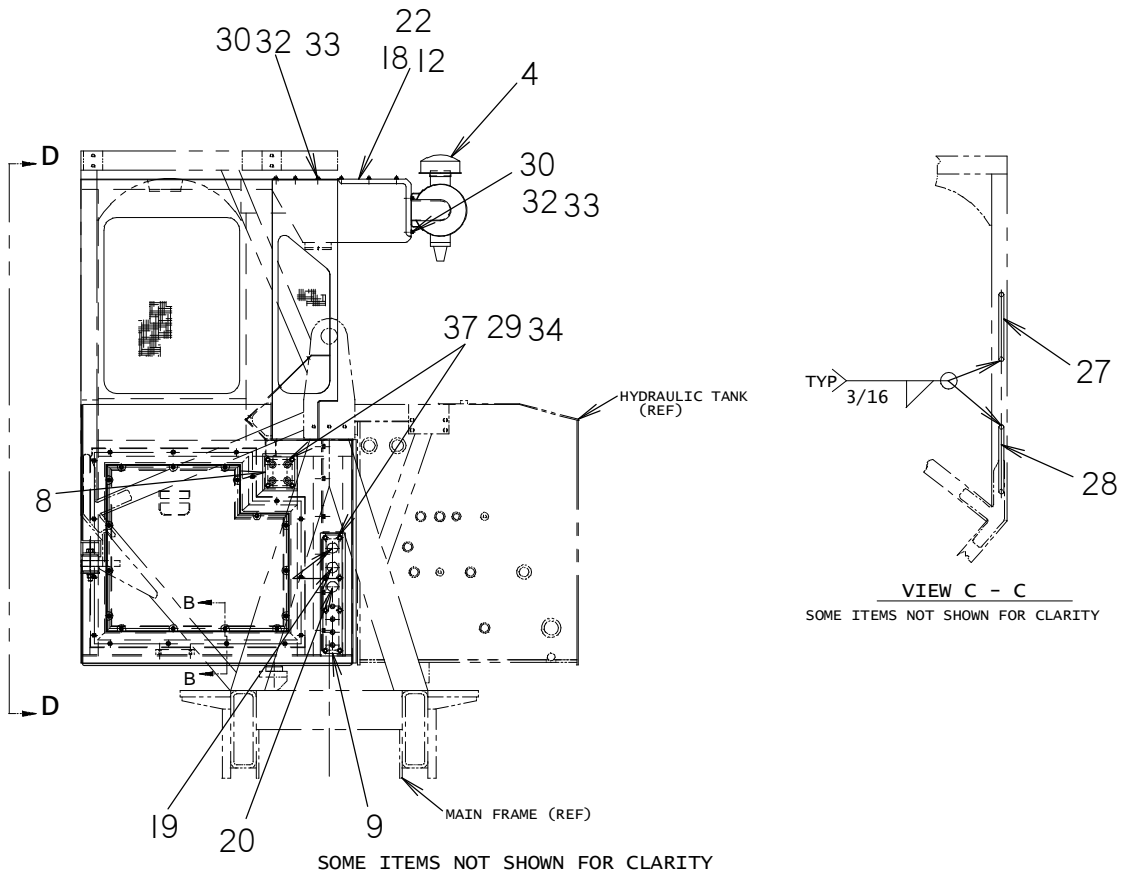
NOTE:

REF. 884010

CAB INSTALLATION

HT220

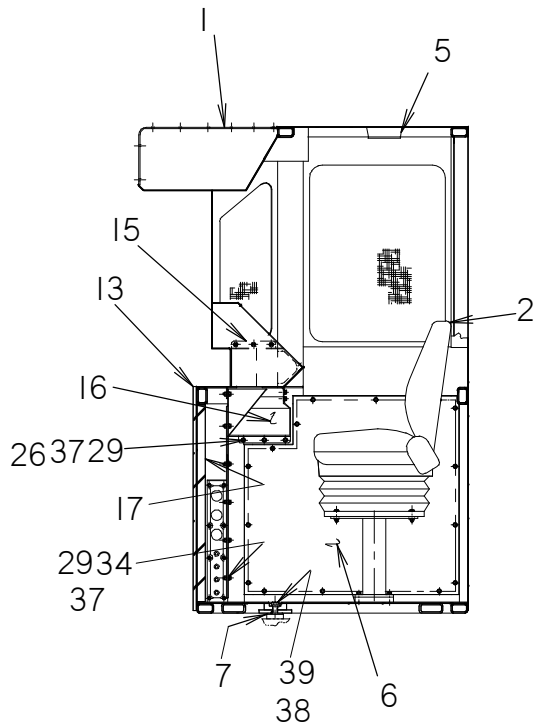
BEGINS WITH S/N CMWHT220J80000012



CAB INSTALLATION

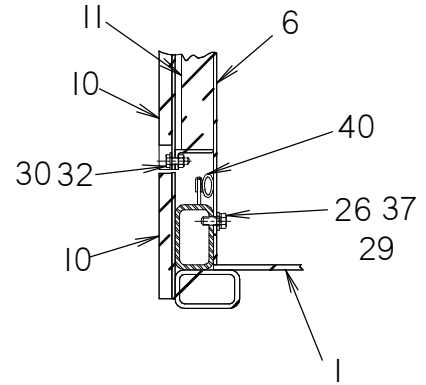
HT220

BEGINS WITH S/N CMWHT220J80000012

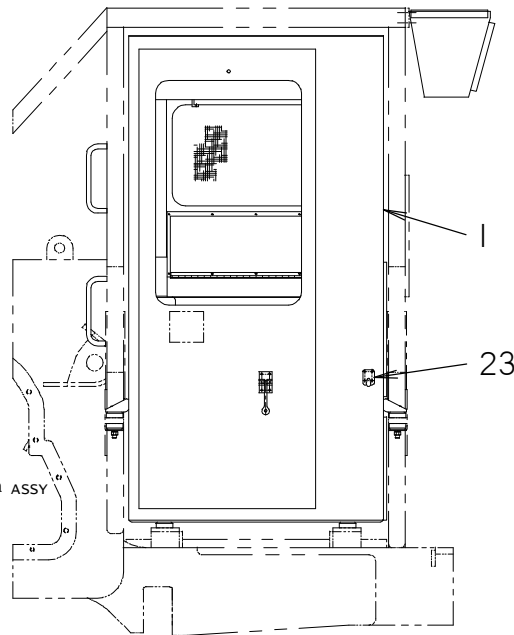


SECTION A - A

SOME ITEMS NOT SHOWN FOR CLARITY



SECTION B - B



TO BE INSTALLED @ ASSY
BY TESMEC

VIEW D - D

CAB INSTALLATION

HT220

BEGINS WITH S/N CMWHT220J80000012

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TST00-1300-032	1	CAB WELDMENT, HT220	
2. TS1400-000	1	SEAT INSTALLATION	
3. TS1300-100	1	CONTROL PANEL ASM'Y.	
4. TS6623-000	1	A/C INSTALLATION	
5. TST00-2200-012	1	DOME LIGHT & FIXTURE	
6. TST00-1300-039	-	FRONT CAB HEAT/NOISE SHIELD	
7. TST00-4501-035	4	2-PIECE RUBBER MOUNT, LORD	
8. TS1303-003	1	CLIMATE BULKHEAD PLT, CAB	
9. TS1303-002	1	HYD/ELEC BULKHEAD PLATE	
10. TST00-1600-012	1	OUTSIDE HEAT/NOISE SHIELD	
11. TST00-1600-013	1	INNER HEAT/NOISE SHIELD.	FRONT CAB SHIELD
12. TST00-5300-310	1	GASKET	CAB A/C SYSTEM COVER & PRESSURIZER
13. TST00-1600-014	1	OUTSIDE HEAT/NOISE SHIELD	CAB/HYD TANK
14. TST00-9510-001	1	FIRE EXTINGUISHER	
15. TST00-1300-038	-	UPPER HOSE COVER, CAB	
16. TST00-1300-037	-	LOWER HOSE COVER, CAB	
17. TST00-1600-015	1	INNER HEAT/NOISE SHIELD	CAB/HYD TANK
18. TST00-1300-036	-	ACCESS COVER, CONTROL PANEL	
19. TST00-8400-147	2	ELECTRICAL CONNECTOR	
20. TST00-8400-149	1	ELECTRICAL CONNECTOR	
21. TST00-4501-036	4	REBOUND WASHER	
22. TST00-5300-309	1	GASKET	CAB A/C SYSTEM COVER
23. TST00-9002-050	1	DOOR HOLDER	
24. 105-385	4	LOCK WASHER (5/8")	
25. 105-386	2	HHCS (5/8-11NC X 4-1/2") GD.8	
26. 105-090	23	HHCS (5/16-18NC X 3/4")	
27. TS9002-001	1	GRAB HANDLE, CAB	
28. TS9002-002	1	GRAB HANDLE, LOWER CAB	
29. 105-091	50	LOCK WASHER (5/16")	
30. 105-865	46	HHCS (1/4-20NC X 3/4")	
31. 106-037	3	HHCS (5/16-18NC X 1/2")	
32. 105-078	46	HEX NUT (1/4-20NC)	
33. 105-079	30	LOCK WASHER (1/4")	
34. 105-094	24	HHCS (5/16-18NC X 1")	
35. 105-357	4	LOCKNUT (5/8-11NC)	

NOT SHOWN:

FOOTNOTES:

- USE 1 @ 26 FEET. INSTALL AROUND PERIMETER OF DOOR OPENING & ENG. COMPARTMENT ACCESS OPENING (VIEW B-B).

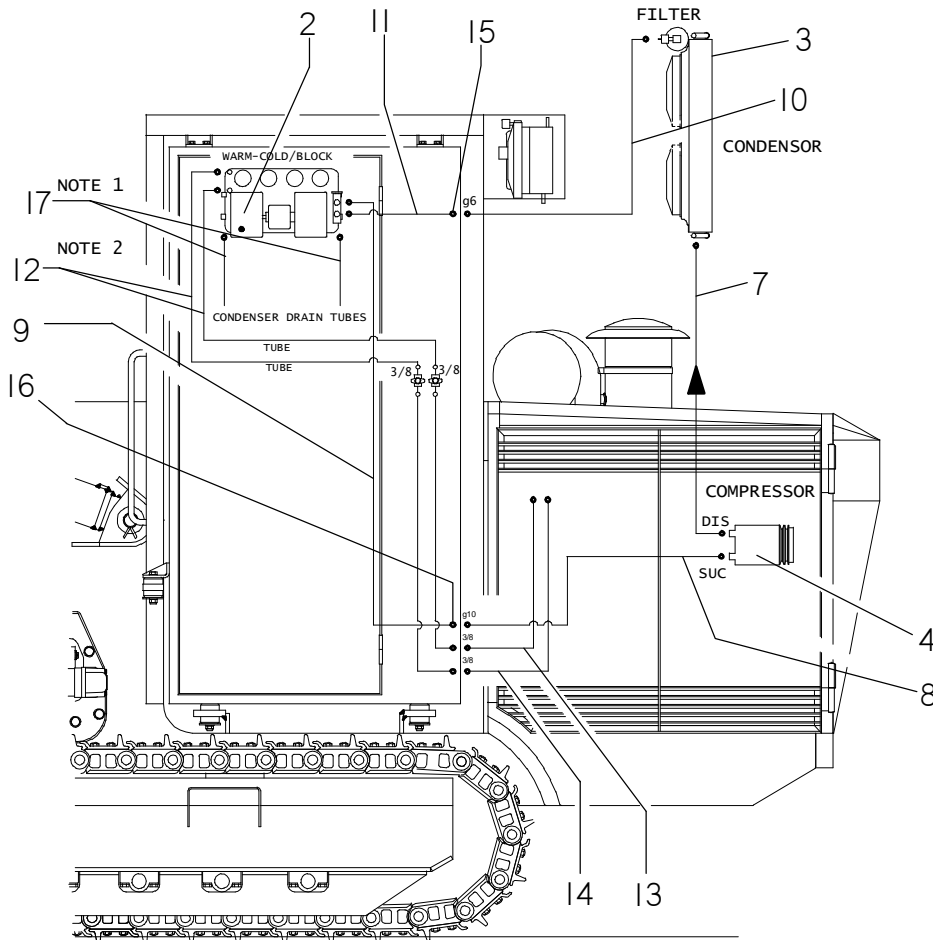
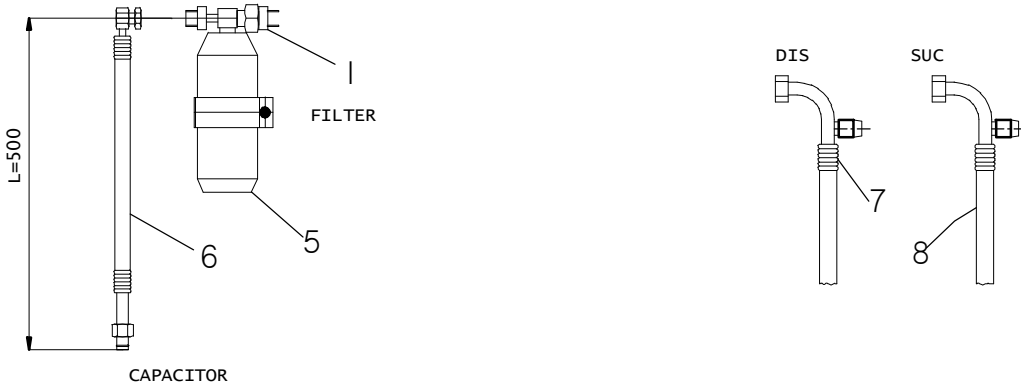
NOTE:

PARTS DISPLAYED FOR REFERENCE ONLY:

- | | | |
|---|-------|-----------------------|
| 36. HARDENED FLAT WASHER (5/8") F436 | (4X) | |
| 37. HHCS (5/8-11NC GR.8) | (2X) | |
| 38. TRIM SEAL, AUSTIN HARDWARE #6100-1/8" | | (REFER TO FOOTNOTE 1) |
| 39. HARDENED FLAT WASHER (5/16") F436 | (50X) | |
| 40. HARDENED FLAT WASHER (1/4") F436 | (46X) | |

TESMEC REFER: 285-1303-000

CAB AIR CONDITIONER ASSEMBLY HT220



NOTE:

- 1- To CUT IN N° 2 PIECES Lg = 1 m
- 2- To CUT IN N° 2 PIECES Lg = 4,3 m

CAB

AIR CONDITIONER ASSEMBLY

HT220

REF PART NO.	NUMBER	QTY	DESCRIPTION	REMARKS
1.	TS07301022	1	FITTING	
2.	TS36400514	1	WARM-COLD/BLOCK	
3.	TS36400503	1	CONDENSOR	
4.	TS36400502	1	COMPRESSOR	
5.	TS36400506	1	FILTER	
6.	TS36400910	1	TUBE, FILTER/COND. 05X500-180° OR 90° OR	
7.	TS36401240	1	TUBE, COMP/COND. 08X3800-90° ROT 180° OR	
8.	TS36401241	1	TUBE, COMP/PASS 10X2000-90° ROT 90° OR	
9.	TS36401242	1	TUBE, PASS/EVAP 10X3000-180° VAL 90° OR	
10.	TS36401243	1	TUBE, FILTER/PASS 06X1000-90° OR 90° OR	
11.	TS36401244	1	TUBE, PASS/EVAP 06X1300-180° VAL 90° OR	
12.	TS05100025	1	TUBE, HEATING	USE 1 @ 8.6M
13.	TS05202826	-	TUBE R1 10X2000 A3/8 JIC K3/8 JIC	
14.	TS05202825	-	TUBE R1 10X800 A3/8 JIC K3/8 JIC	
15.	TS36401254	1	FITTING G06	
16.	TS36401252	1	FITTING G10	
17.	TS05100026	1	TUBE, CONDENSER DRAIN	USE 1 @ 2M

NOT SHOWN:

TS36400513	1	MOTOR, FAN
TS36400517	-	EXPANSION VALVE
TS36400511	-	FAN
TS36400515	1	SWITCH, VENTILATION
TS36400535	1	SWITCH. A/C
TS36400947	5	AIR VENT

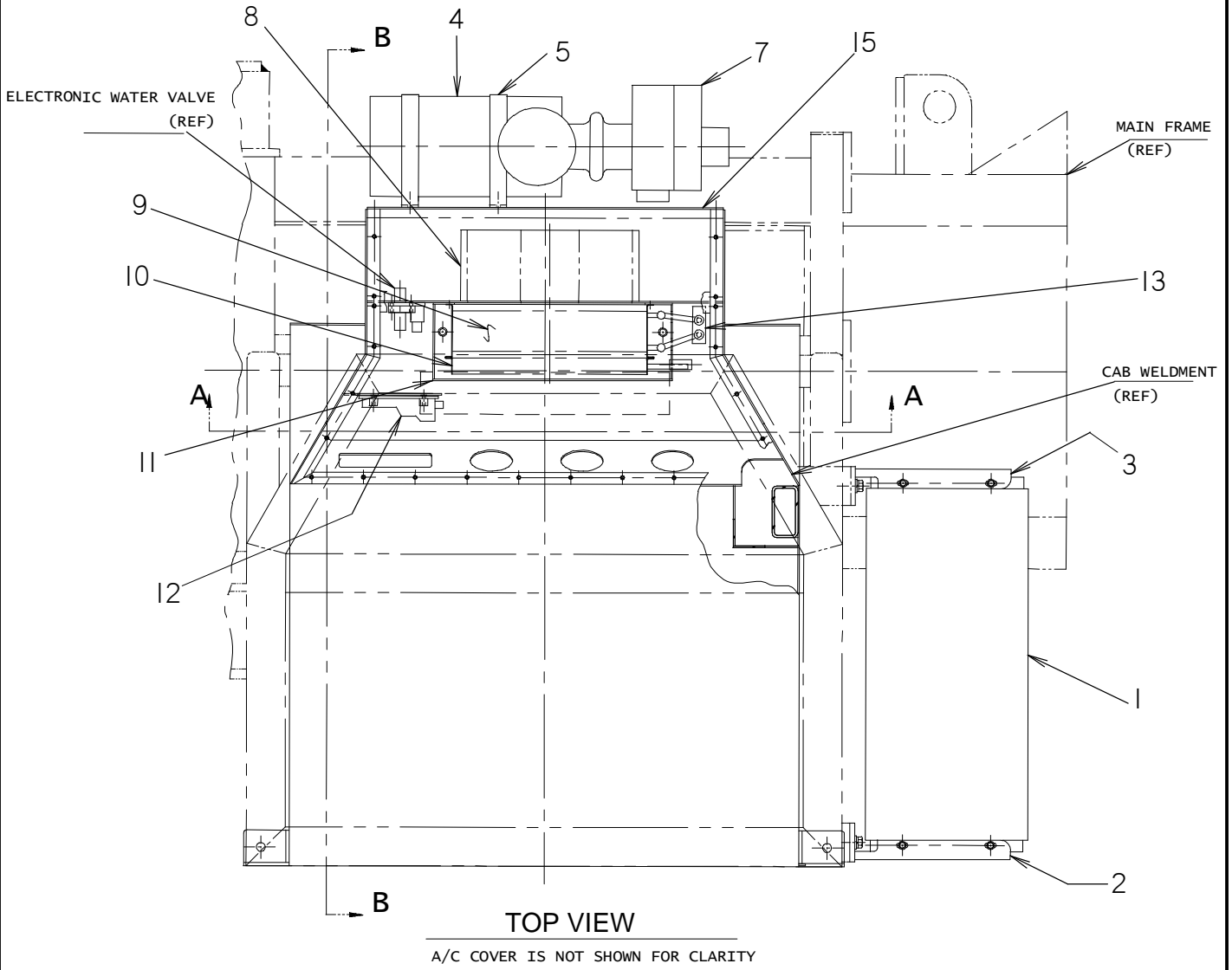
FOOTNOTES:

NOTE:

REF. 884080

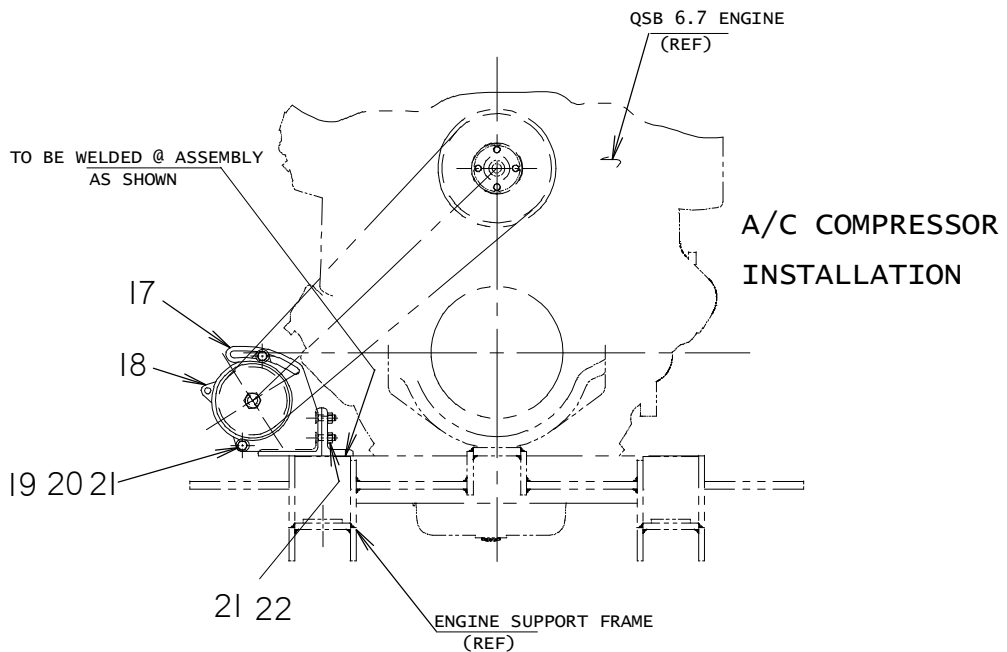
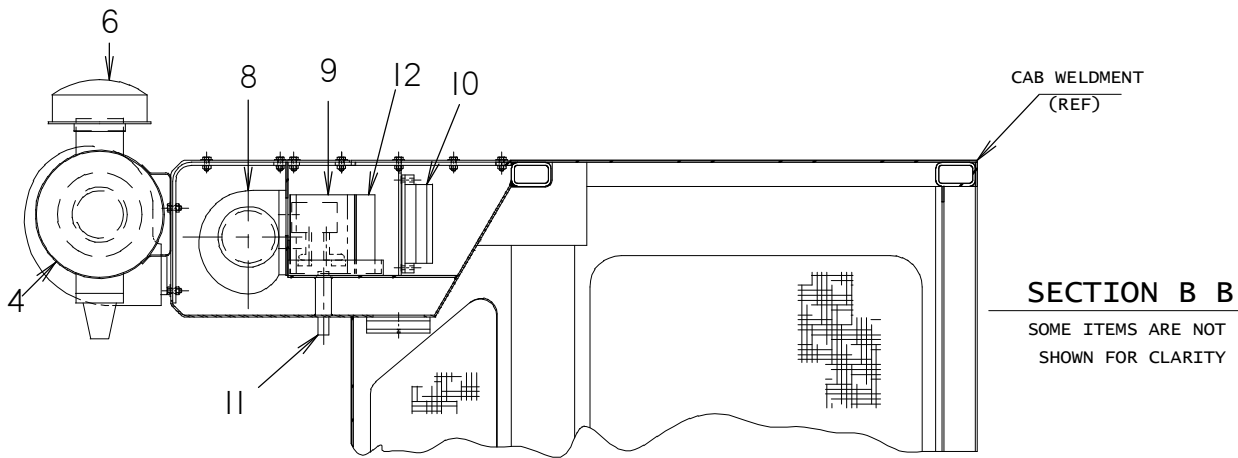
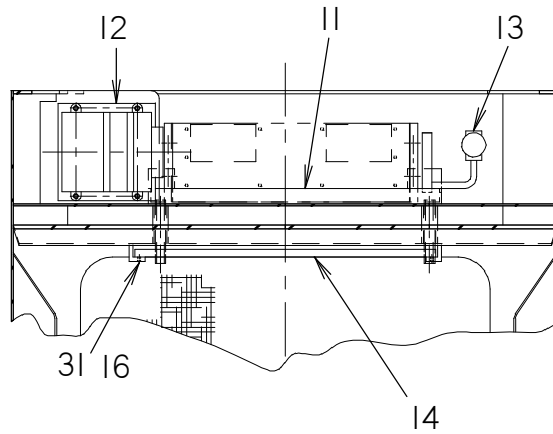
A/C SYSTEM INSTALLATION

HT220
BEGINS WITH S/N CMWHT220J8000012



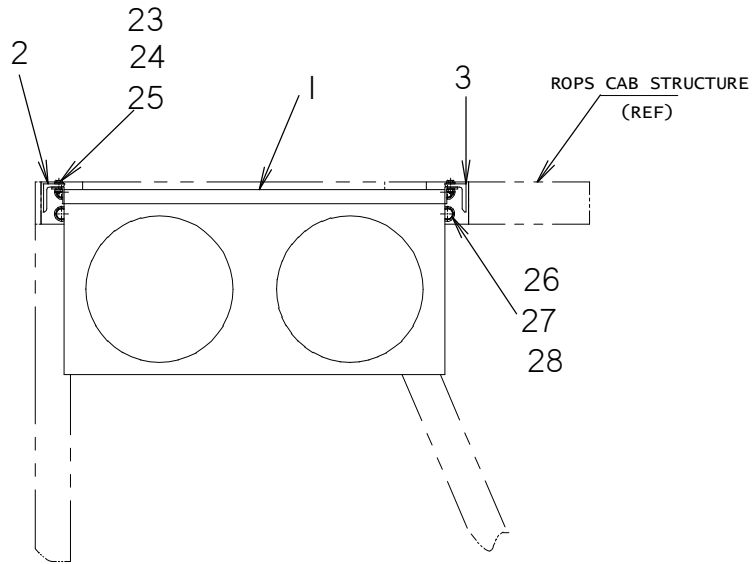
A/C SYSTEM INSTALLATION

HT220
BEGINS WITH S/N CMWHT220J8000012



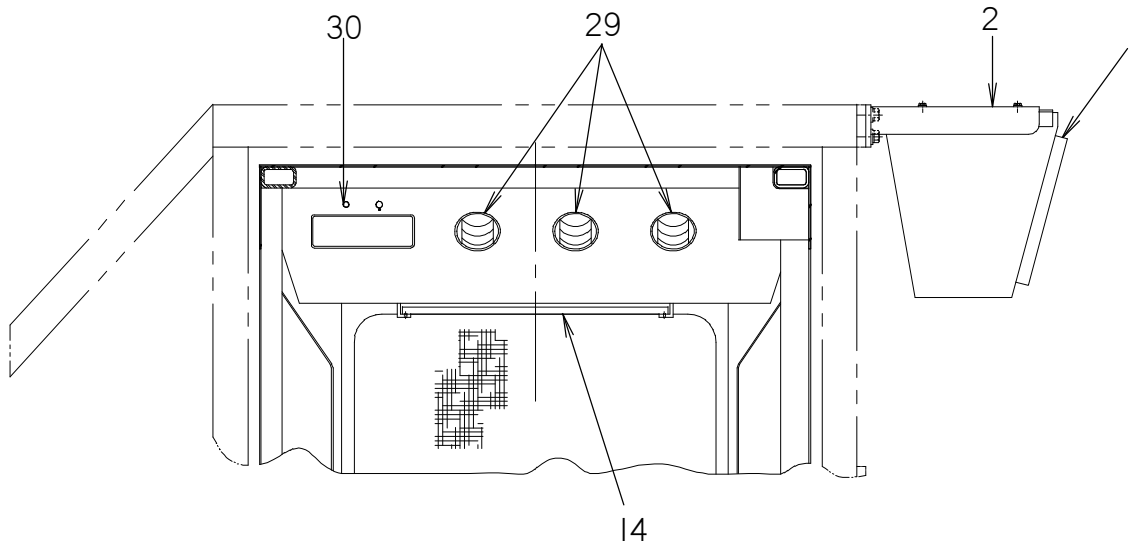
A/C SYSTEM INSTALLATION

HT220
BEGINS WITH S/N CMWHT220J8000012



VIEW FROM FRONT TO REAR

CAB IS NOT SHOWN FOR CLARITY



VIEW FROM INSIDE THE CAB

SOME ITEMS ARE NOT SHOWN FOR CLARITY

A/C SYSTEM INSTALLATION

HT220

BEGINS WITH S/N CMWHT220J8000012

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TST00-6622-002	1	CONDENSER ASSEMBLY	
2. TS6623-002	1	CONDENSER MOUNT, R/H	
3. TS6623-003	1	CONDENSER MOUNT, L/H	
4. TST00-6600-980	1	PRESSURIZER FILTER	
5. TST00-6622-030	1	MOUNTING BANDS	
6. TST00-6622-029	1	INLET HOOD	
7. TST00-6600-971	1	PRESSURIZER MOTOR ASM'Y.	
8. TST00-6600-975	1	DUAL CAGE FAN	
9. TST00-6622-012	1	EVAPORATOR	
10. TST00-6622-011	1	HEATER	
11. TS6623-011	1	A/C DRIP TRAY	
12. TST00-6600-984	1	ELECTRONIC A/C CONTROLLER	
13. TST00-6600-977	1	EXPANSION VALVE	
14. 500-1787	1	INLET FILTER	TST00-6622-027
15. TST00-5300-500	1	RUBBER GROMMET	
16. 105-186	2	NUT (#10-24)	
17. TS4500-011	1	A/C COMPRESSOR MOUNTING BRKT.	
18. TST00-6622-003	1	COMPRESSOR ASSEMBLY	
19. 105-156	2	HHCS (3/8-16 UNC X 1-1/2")	
20. 105-186	4	FLAT WASHER (3/8") HARDENED, F436	
21. 105-047	5	LOCKNUT (3/8-16 UNC)	
22. 105-236	3	SFCHCS (3/8-16 UNC X 1-1/4")	
23. 105-865	4	HHCS (1/4-20 UNC X 3/4")	
24. 105-095	4	FLAT WASHER (1/4")	
25. 108-085	4	LOCKNUT (1/4-20 UNC)	
26. 105-121	4	HHCS (1/2-13 UNC X 1")	
27. 107-605	4	FLAT WASHER (1/2") HARDENED, F436	
28. 105-070	4	LOCK WASHER (1/2")	
29. TST00-6600-979	3	LOUVER	
30. TST00-8400-063	1	SWITCH, ON-OFF	

NOT SHOWN:

FOOTNOTES:

NOTE:

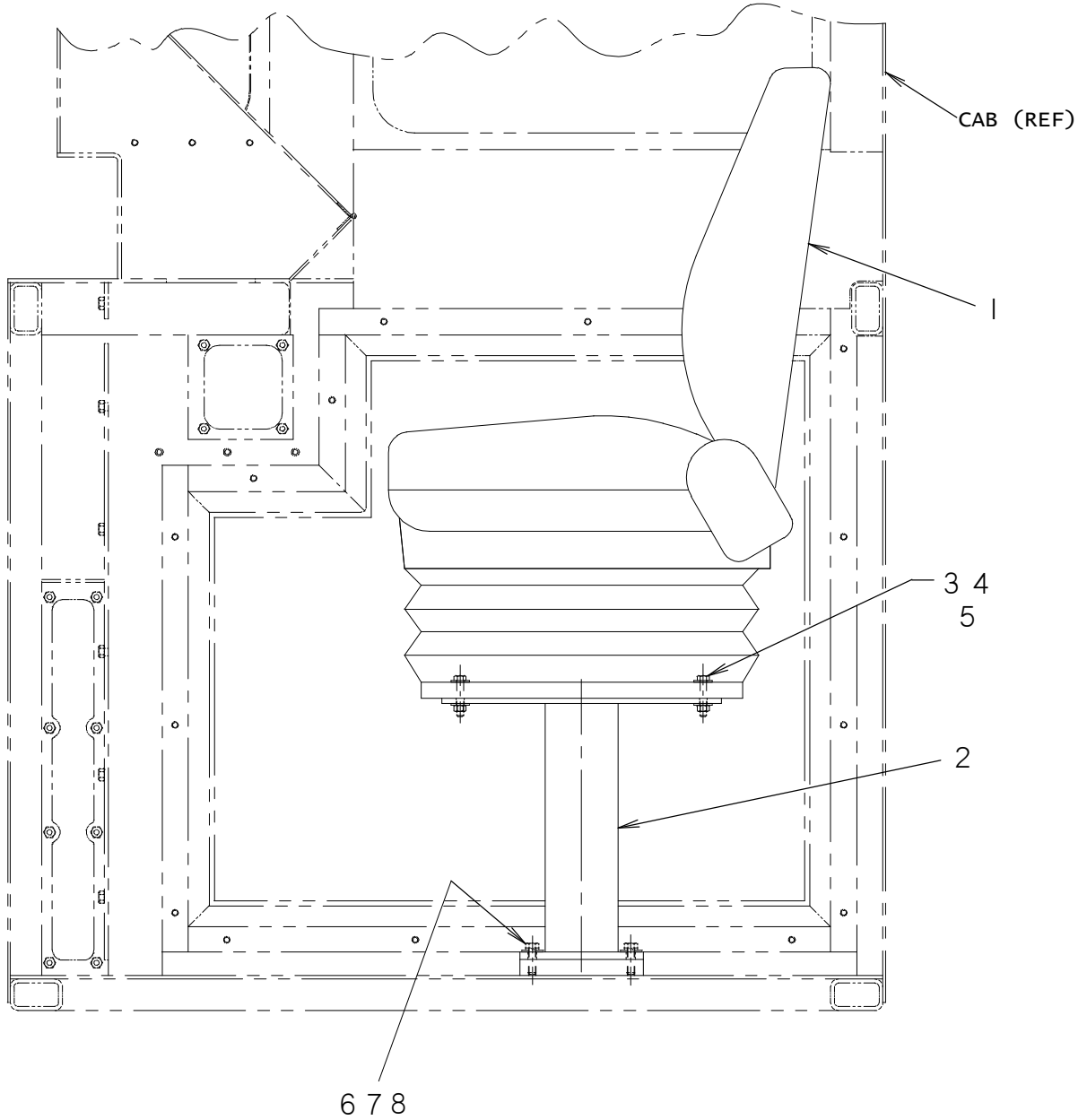
PARTS DISPLAYED FOR REF. ONLY:

31. THUMB SCREW (#10-24 X 1/2") (2X)

TESMEC REF: 285-6623-000

SEAT INSTALLATION

HT220
BEGINS WITH S/N CMWHT220J80000012



SEAT INSTALLATION

HT220

BEGINS WITH S/N CMWHT220J80000012

REF PART					
NO.	NUMBER	QTY	DESCRIPTION		REMARKS
1.	TST00-1400-014	1	SEAT ASSEMBLY		
2.	TS1400-001	1	SEAT PEDESTAL		
3.	105-285	4	HHCS (5/16-18NC X 1-3/4)		
4.	105-091	4	LOCK WASHER (5/16")		
5.	105-117	8	FLAT WASHER (5/16")		
6.	105-052	4	HHCS 3/8-16NC X 1-1/4")		
7.	105-118	4	FLAT WASHER (3/8")		
8.	105-072	4	LOCK WASHER (3/8")		

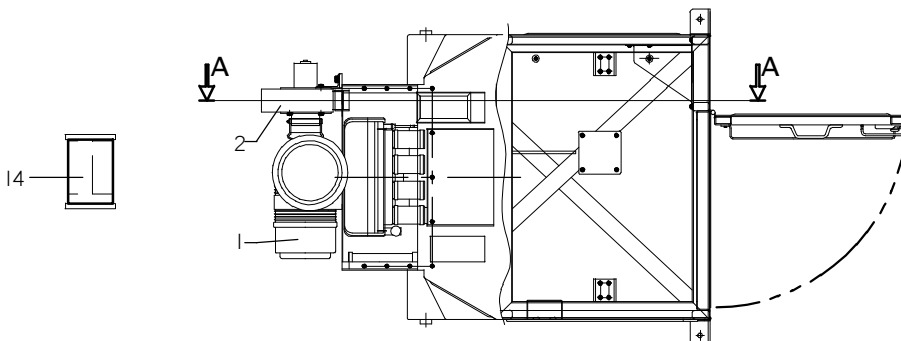
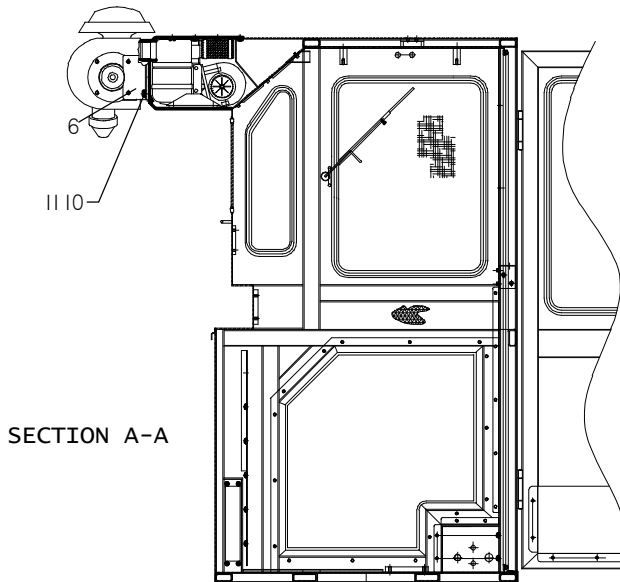
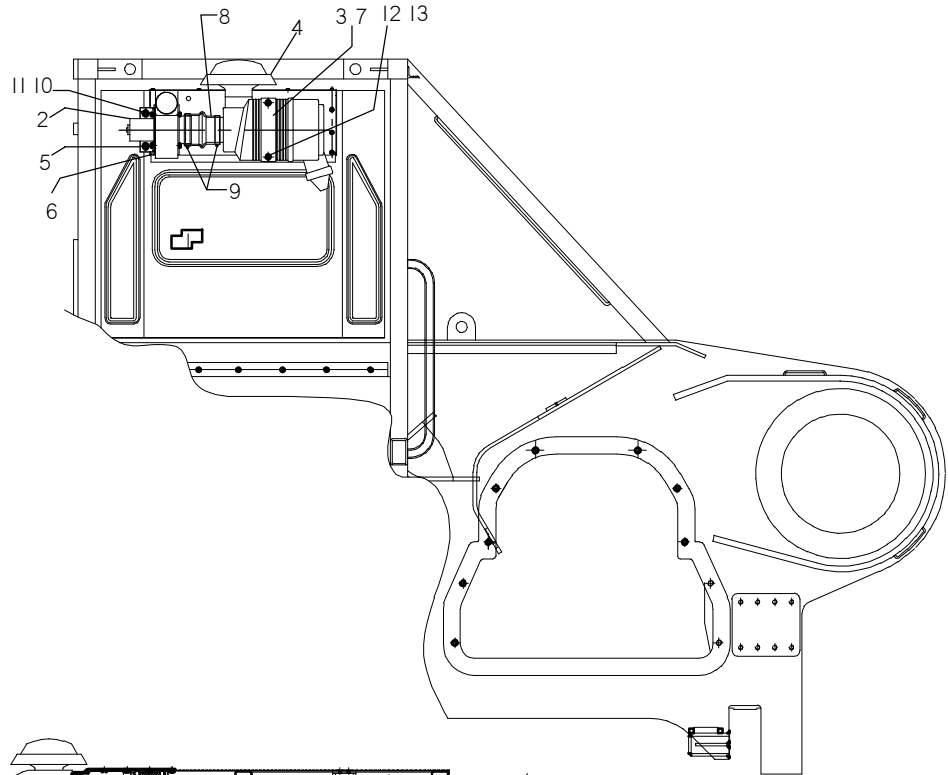
NOT SHOWN:

FOOTNOTES:

NOTE:

REF. 285-1400-000

PRESSURIZER ASSEMBLY HT220



PRESSURIZER ASSEMBLY

HT220

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TS36401131	1	AIR FILTER	
2. TS36401114	1	PRESSURIZER	
3. TS36401133	1	FILTER SUPPORT BRACKET	
4. TS36401134	1	COVER	
5. TSTS86798	-	THREADED PLATE	
6. TS87030	-	SUPPORT	
7. TS89208	-	THREADED PLATE	
8. TS36401142	1	RUBBER CONNECTION	
9. TS05309022	2	BAND CLAMP	
10. 111-054	2	BOLT M10 X 25 UNI 5739	TS28200321
11. 106-090	2	LOCK WASHER D. 10.5 UNI 1751	TS25012010
12. 107-519	2	BOLT M8 X 12 UNI 5739	TS40308012
13. TS25012008	2	LOCK WASHER D.8.4 UNI 1751	
14. TS36401132	-	AIR FILTER CARTRIDGE	

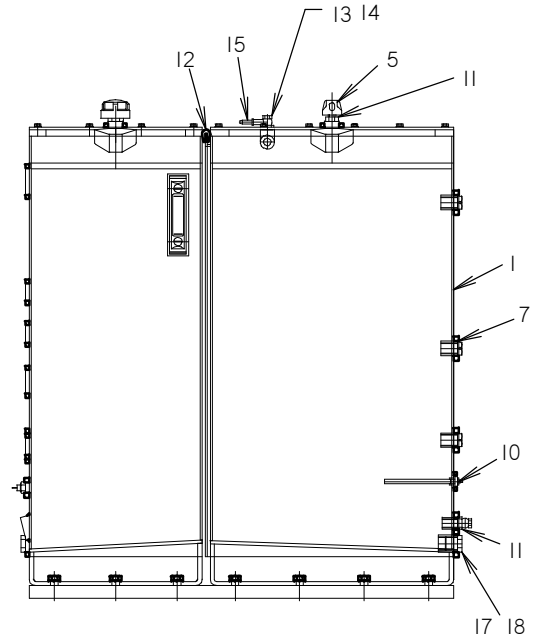
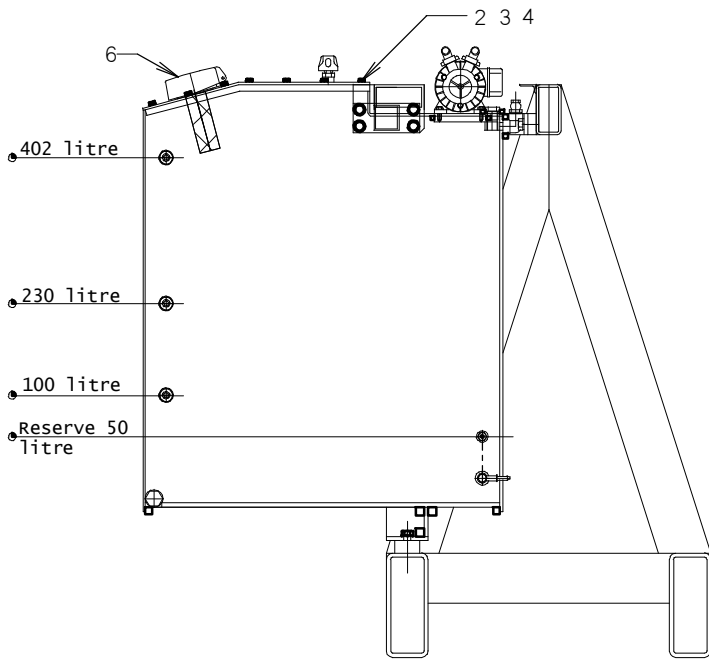
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FOOTNOTES:

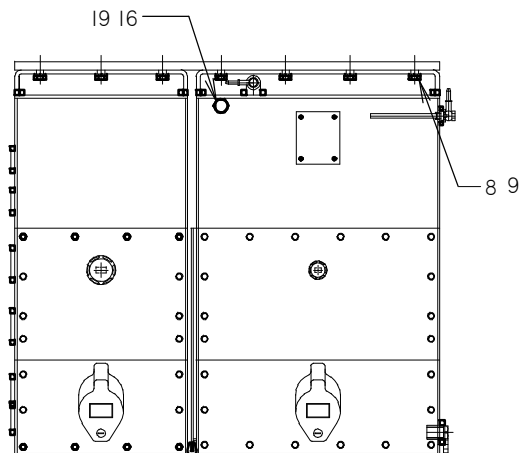
NOTE:
REF. 884750

FUEL TANK ASSEMBLY HT220

SEAL LID WITH RED SILICONE
HEAT RESISTANT cod.50000087



TANK VOLUME 466 litres



FUEL TANK ASSEMBLY

HT220

REF PART NO.	NUMBER	QTY	DESCRIPTION	REMARKS
1.	TS84569	1	FUEL TANK	
2.	106-083	22	HHCS M8X20 UNI5739 8.8	TS40308020
3.	106-389	22	FLAT WASHER D.8.4 UNI6592	TS25010008
4.	TS25012008	22	LOCK WASHER D.8.4 UNI1751	
5.	TST00-6600-004	1	BREATHER 1/4 GAS	
6.	TS48000058	1	FILL CAP	
7.	TS30002069	3	SIGHT PLUG	
8.	106-338	8	HEX NUT M16X30 UNI5739 8.8	TS40313030
9.	TS25012017	8	LOCK WASHER D.17 UNI1751	
10.	TS09102052	1	RESERVE INDICATOR	
11.	TS01214112	3	RACC. TN 141 1/2 X 1/4 R	
12.	TS30920021	1	GASKET	USE 1 @ 2M
13.	TS34020021	2	BOLT FORATA 1/4 GAS	
14.	TS30900014	4	WASHER BONDED 1/4 GAS	
15.	TS01600134	2	CONNECTOR 1/4 GAS	
16.	TS30500034	1	WASHER 3/4	
17.	TS02201100	1	CAP 1" GAS	
18.	TS30500100	1	WASHER RAME 1	
19.	TS02201034	1	CAP 3/4" GAS	

NOT SHOWN:

TS05305010	2	BAND TUBE 10-17	
TS05100008	1	FLEX TUBE, DIESEL RETURN	USE 1 @ 4.2M
TS02201034	1	FLEX TUBE, DIESEL SUPPLY	USE 1 @ 3.1M
TS30500034	1	FLEX TUBE, DIESEL SUPPLY	USE 1 @ 3.8M

FOOTNOTES:

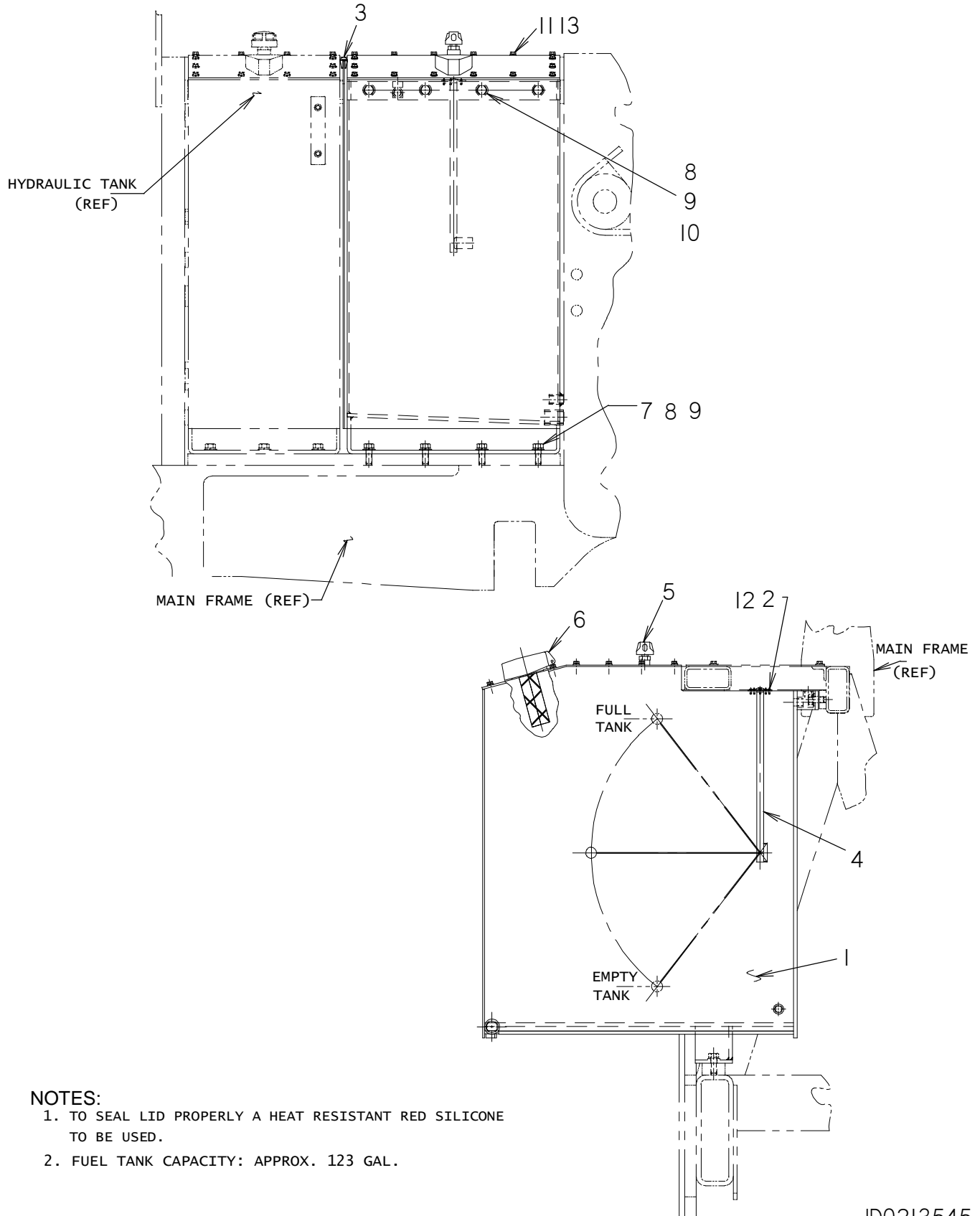
NOTE:

REF. 845661

FUEL TANK INSTALLATION

HT220

BEGINS WITH S/N CMWHT220J80000012



NOTES:

1. TO SEAL LID PROPERLY A HEAT RESISTANT RED SILICONE TO BE USED.
2. FUEL TANK CAPACITY: APPROX. 123 GAL.

FUEL TANK INSTALLATION

HT220

BEGINS WITH S/N CMWHT220J80000012

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TS4800-001	1	FUEL TANK WELDMENT	
2. 195-418	5	LOCKWASHER (#10-32)	
3. TST00-1600-016	1	RUBBER EDGE TRIM	USE 1 @ 6.6"
4. TST00-8600-175	1	FUEL LEVEL SENDER, 240 OHM	
5. TST00-6600-004	1	AIR BREATHER (1/4-NPT)	
6. TST00-4800-209	1	FILLER CAP, UCC	
7. 105-456	4	HHCS (5/8-11 UNC X 1-3/4") GR8	
8. 108-222	8	FLAT WASHER (5/8") HARDENED F436	
9. 105-385	8	LOCK WASHER (5/8")	
10. 107-181	4	HHCS (5/8-11 UNC X 1-1/4") GR8	

NOT SHOWN:

FOOTNOTES:

NOTE:

PARTS SHOWN FOR REFER. ONLY:

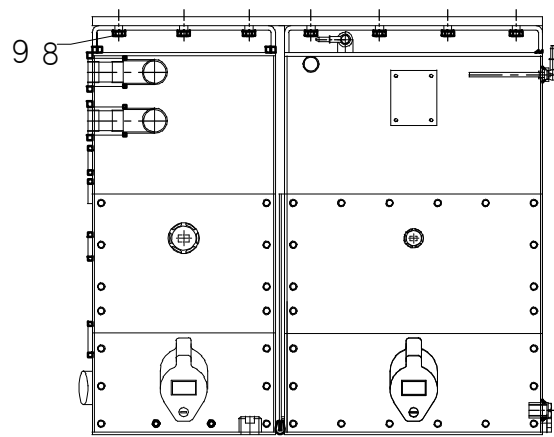
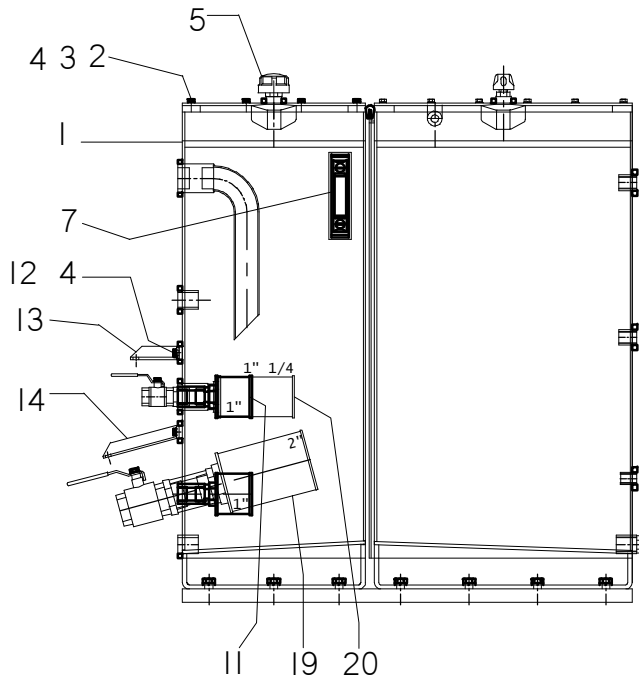
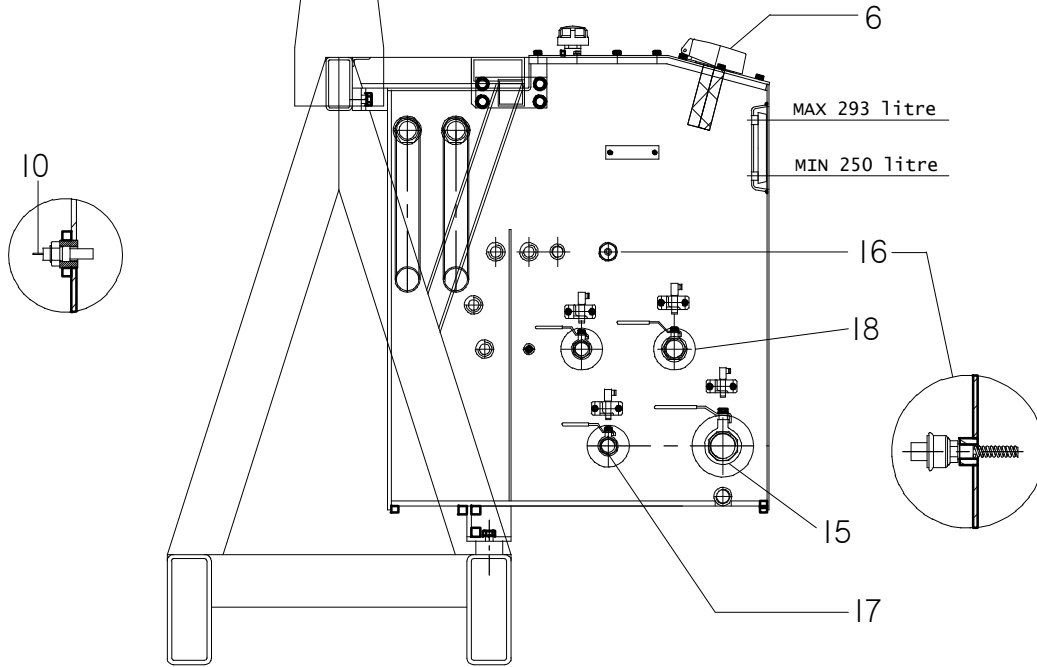
- | | |
|---|-------|
| 11. HHCS (5/16-18 UNC X 1-1/4") | (22X) |
| 12. SCREW, MUSHROOM HEAD (#10-32 NF X 1/2") | (5X) |
| 13. BRASS WASHER (5/16") | (22X) |

TESMEC REF: 285-4800-000

OIL TANK ASSEMBLY

HT220

SEAL LID WITH RED SILICONE
HEAT RESISTANT cod.5000087



TANK VOLUME 330 litre

OIL TANK ASSEMBLY

HT220

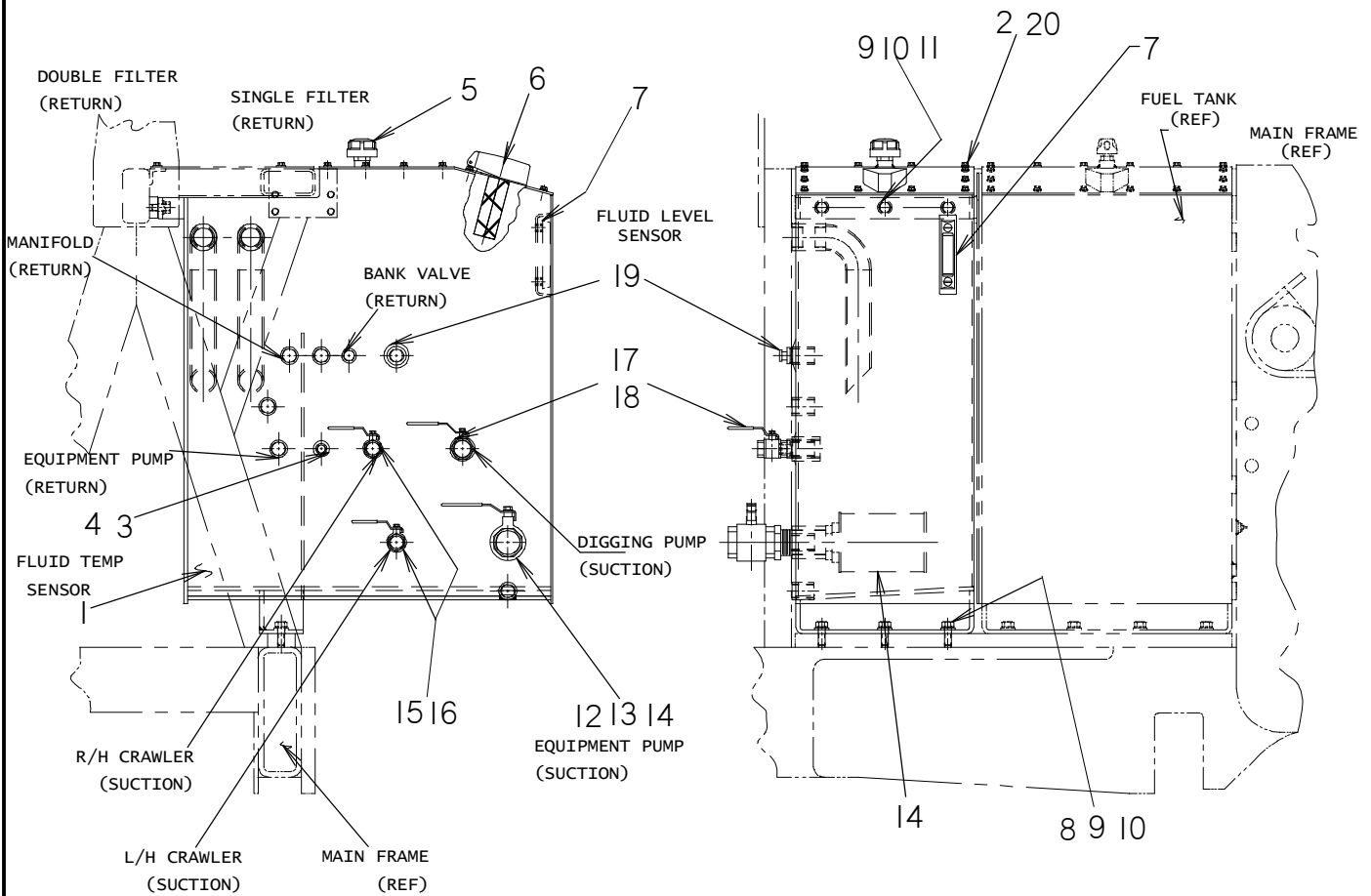
REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TS88726	1	OIL TANK	
2. 106-083	18	HHCS M8X20 UNI 5739 8.8	TS40308020
3. 106-389	18	FLAT WASHER D.8.4 UNI 6592	TS25010008
4. TS25012008	26	LOCK WASHER D.8.4 UNI 1751	
5. TST006600001	1	BREATHER 1/4	
6. TS48000058	1	FILL CAP	
7. TS30002130	1	LEVEL INDICATOR	
8. 106-338	6	HEX NUT M16X30 UNI 5739 8.8	TS40313030
9. TS25012017	6	LOCK WASHER D.17 UNI 1751	
10. TS09102995	1	SENSOR, TEMPERATURE	
11. TS36401150	-	FILTER	
12. 106-232	8	HHCS M8X16 UNI 5739 8.8	TS40308016
13. TS87017	3	SUPPORT	
14. TS88727	1	SUPPORT	
15. TS01600057	1	VALVE 2"	
16. TS09102741	1	SENSOR, OIL LEVEL	
17. TS01600050	2	VALVE 1"	
18. TS01600037	1	VALVE 1-1/4"	
19. TS03300041	1	FILTER	
20. TS03300042	1	FILTER	

NOT SHOWN:

FOOTNOTES:

NOTE:
REF. 884230

HYDRAULIC TANK ASSEMBLY
HT220
BEGINS WITH S/N CMWHT220J80000012



NOTES :

1. TO SEAL LID PROPERLY A HEAT RESISTANT RED SILICONE TO BE USED.
2. HYDRAULIC TANK CAPACITY: APPROX. 87 GAL.

HYDRAULIC TANK ASSEMBLY

HT220

BEGINS WITH S/N CMWHT220J80000012

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TS4801-001	1	HYD. TANK WELDMENT	
2. 105-094	18	HHCS (5/16-18 UNC X 1")	
3. TST00-7503-001	1	TEMP. SENDER ADAPTER	
4. TST00-8600-064	1	TEMP. SENDING UNIT	
5. TST00-6600-001	1	AIR BREATHER (3/4-NPT)	
6. TST00-4800-209	1	FILLER CAP, UCC	
7. TST00-8600-174	1	COLUMN LEVEL INDICATOR, ELESA	
8. 105-456	3	HHCS (5/8-11 UNC X 1-3/4") GR8	
9. 108-222	6	FLAT WASHER (5/8")HARDENED F436	
10. 105-385	6	LOCK WASHER (5/8")	
11. 107-181	3	HHCS (5/8-11 UNC X 1-1/4") GR8	
12. TST00-6100-512	1	BALL VALVE (2-NPT)	
13. 515-680	1	CLOSE NIPPLE (2-NPT)	
14. TST00-6600-139	1	SUCTION STRAINER	
15. TST00-6100-515	2	BALL VALVE (1-NPT)	
16. 115-206	2	CLOSE NIPPLE (1-NPT)	
17. TST00-6100-520	1	BALL VALVE (1-1/4-NPT)	
18. 115-207	1	CLOSE NIPPLE (1-1/4-NPT)	
19. TST00-8600-087	1	FLUID LEVEL SENSOR	

NOT SHOWN:

FOOTNOTES:

NOTE:

PARTS SHOWN FOR REFER. ONLY:

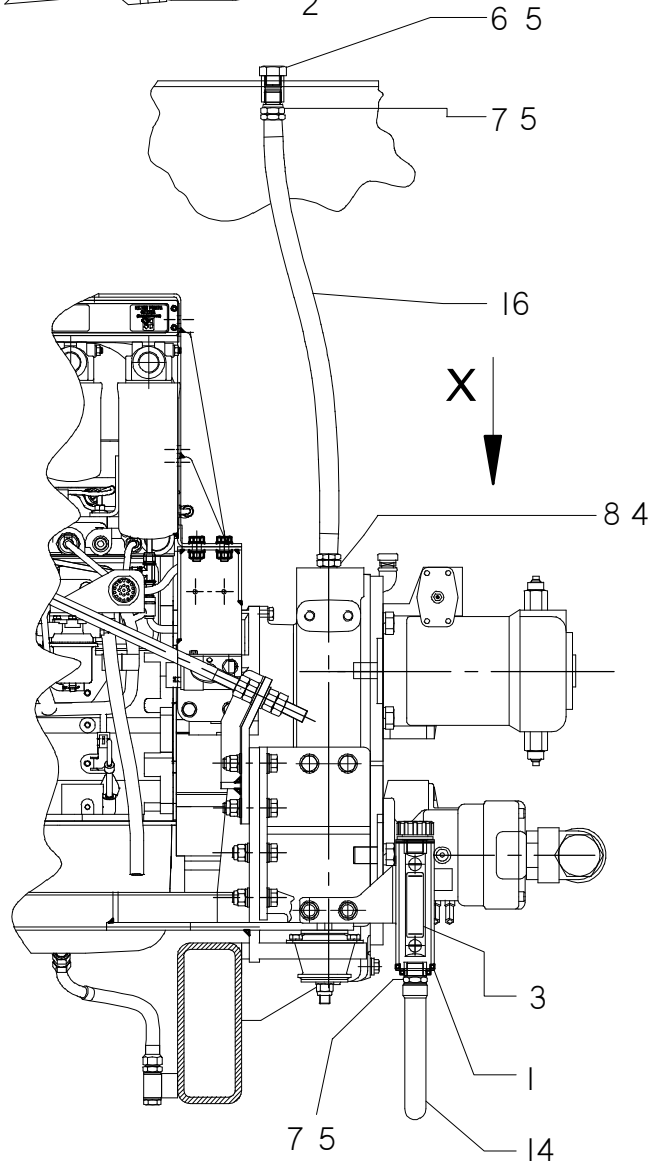
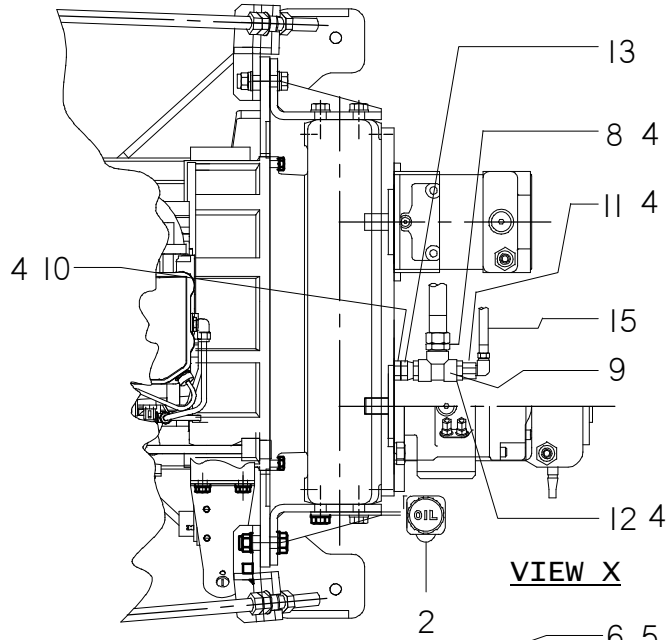
20. BRASS WASHER (5/16")

TESMEC REF: 285-4801-000

POWER TRAIN

GEARBOX OIL LEVEL ASSEMBLY

HT220



GEARBOX OIL LEVEL ASSEMBLY

HT220

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TS88897	1	BASIN, OIL LEVEL	
2. TS36400952	1	CAP, OIL LEVEL	
3. TS30002132	1	LEVEL INDICATOR	
4. TS30500012	5	COPPER WASHER, 1/2 GAS	
5. TS30500034	3	COPPER WASHER, 3/4 GAS	
6. TS02201034	1	PLUG 3/4 GAS	
7. TS05700486	2	NIPPLE 3/4 GAS - 3/4 JIC	
8. TS05802122	2	NIPPLE 1/2 GAS - 3/4 JIC	
9. TS01250120	1	FITTING "T" 1/2 GAS CIL	
10. TS05701012	1	NIPPLE 1/2 GAS	
11. TS01603303	1	ELBOW 90 M/F 1/2 JIC	
12. TS05802102	2	NIPPLE 1/2 GAS - 1/2 JIC	
13. TS05704012	1	ADAPTER 1/2 GAS M/F	
14. TS05202816	-	TUBE R1 19X950 A3/4 JIC K3/4 JIC	
15. TS05202817	-	TUBE R1 13X800 A1/2 JIC K1/2 JIC	
16. TS05202850	-	TUBE R1 19X550 A3/4 JIC A3/4 JIC	

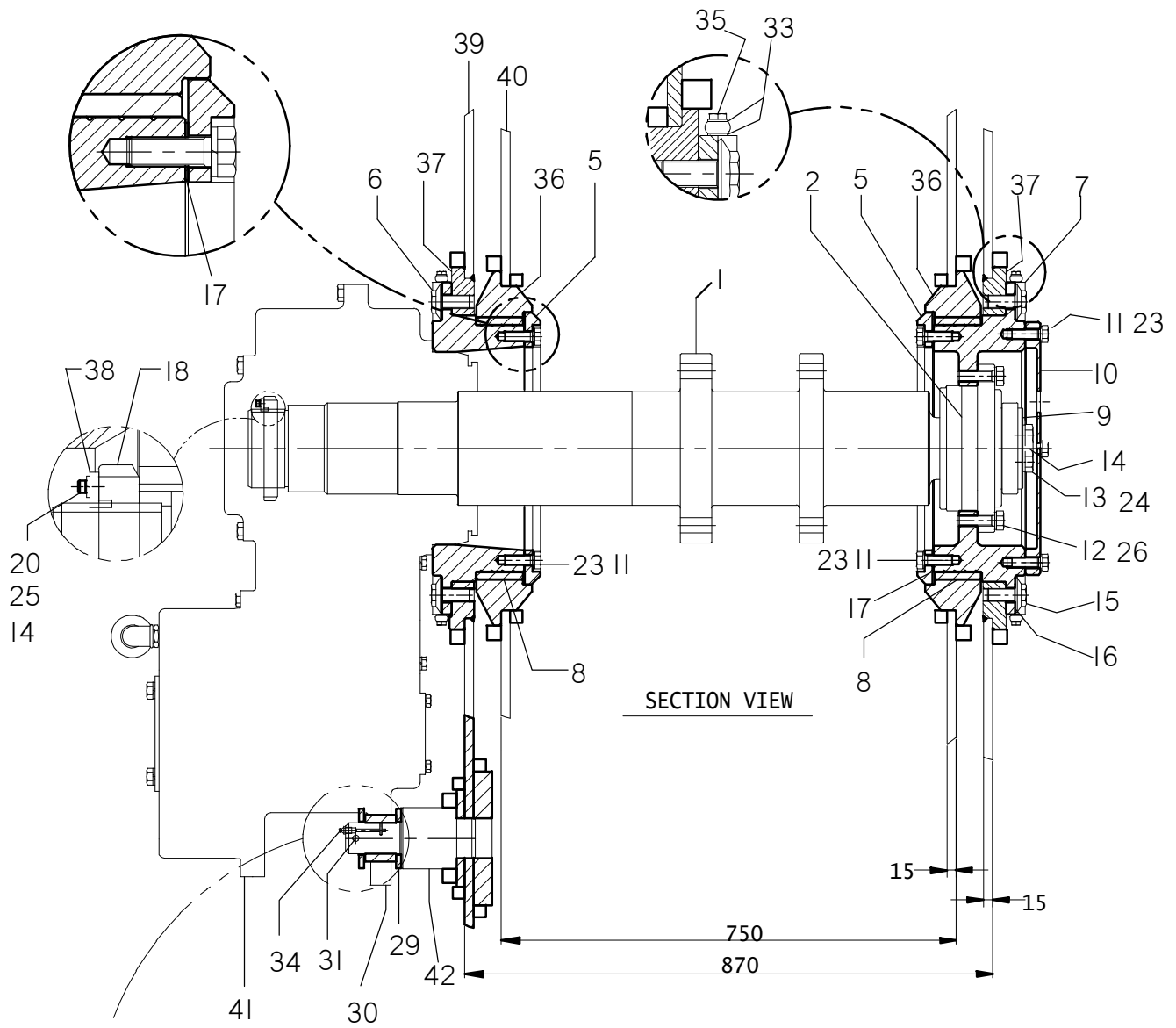
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FOOTNOTES:

NOTE:
REF: 88890

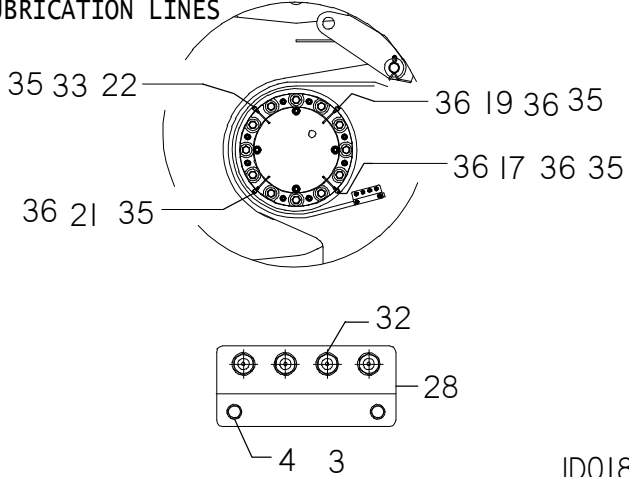
DIGGING COMPONENTS

HEADSHAFT ASSEMBLY HT220



SECTION VIEW

DETAIL VIEW
LUBRICATION LINES



2.5mm
ENDPLAY
min.

HEADSHAFT ASSEMBLY

HT220

TS25010006
TS40106012

REF PART NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	8285TS4	1	HEADSHAFT	
2.	TST00500002	1	FLANGE BEARING	
3.	106-234	4	HHCS M6X12 UNI5737 8.8	
4.	106-388	4	FLAT WASHER D.6.4 UNI6592	
5.	35027TS5006	2	SPLIT RETAINER	
6.	TS82848	1	PIVOT BEARING	
7.	TS82847	1	PIVOT BEARING	
8.	TS3502715002	2	WEAR RING	
9.	TS2004312001	1	END CAP	
10.	TS82849	1	COVER	
11.	106-340	28	HHCS M16X50 UNI5737 10.9	TS42116050
12.	TS40118061	4	HHCS M18X60 UNI5737 10.9	
13.	106-344	3	HHCS M20X40 UNI5739 10.9	TS40320041
14.	TS36400209	1	SAFETY WIRE	USE 1 @ 0.5mm
15.	TS42111050	24	HHCS M22 X 50 UNI 5737 10.9	
16.	TS2009300002	24	HEX WASHER	
17.	TS3502715009	2	SHIM	
18.	TS82852	1	NUT, LOCKING, MODIFIED	
19.	TS05201701	-	TUBE R1 6X500 01/1 K1/4	
20.	107-322	2	SHCS M6X25 UNI5931 10.9	TS42506025
21.	TS05201481	-	TUBE R1 6X700 01/1 K1/4	
22.	TS05201194	-	TUBE R1 6X1100 01/4 K1/4	
23.	TS25012017	28	LOCK WASHER D.17 UNI 1751	
24.	TS25012021	3	LOCK WASHER D.21 UNI 1751	
25.	TS25012006	2	LOCK WASHER D.6.4 UNI 1751	
26.	TS25012019	4	LOCK WASHER D.19 UNI 1751	
27.	TS05201652	-	TUBE R1 6X300 01/4 K1/4	
28.	TS83868	-	GREASE PANEL	
29.	TS25010054	2	FLAT WASHER D.54 UNI6592	
30.	TS200-2714-009	1	ECCENTRIC BUSHING	
31.	TS25410100	1	COTTER PIN D.10X100 UNI1336	
32.	TS31000014	8	GREASE FITTING 1/4 GAS	
33.	TS30516102	16	WASHER, COPPER D.12	
34.	TS31000000	1	GREASE FITTING M10X1 UNI7663	
35.	TS34020011	8	BOLT, PIERCED M12 X 1.25	

NOT SHOWN:

TS44908010 8 FHSS M8 X 15 UNI 5923

FOOTNOTES:

NOTE:

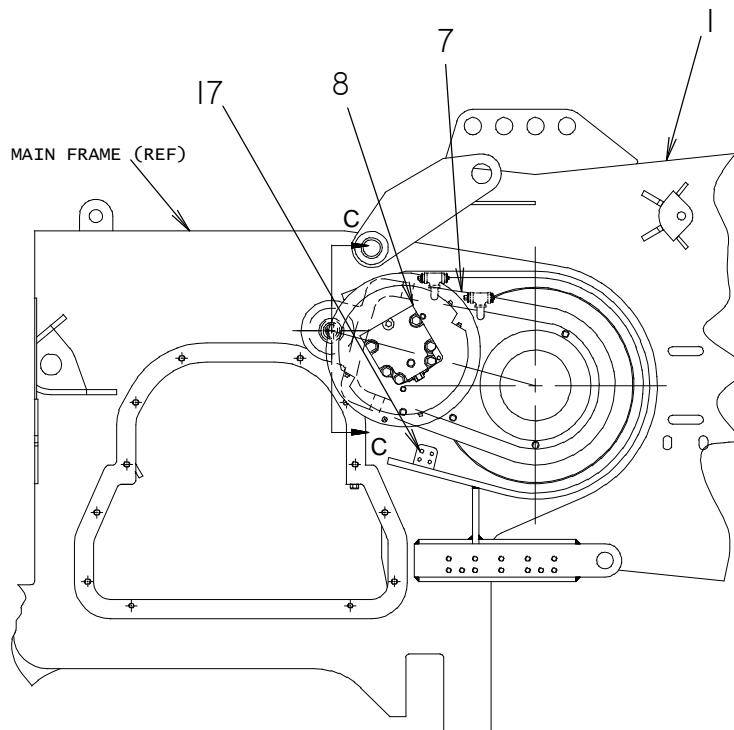
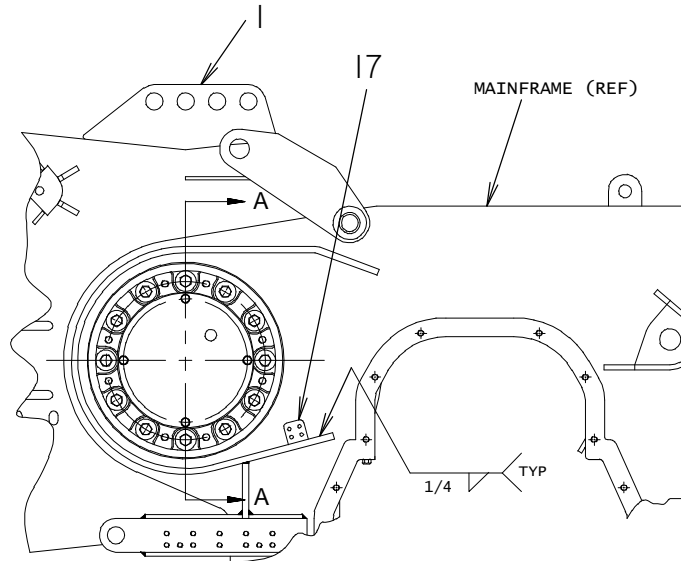
PARTS DISPLAYED FOR REFERENCE ONLY:

- 36. INNER SHROUD BEARING
- 37. PILOT PLATE
- 38. TAB, LOCKING
- 39. OUTSIDE SHROUD
- 40. INSIDE SHROUD
- 41. FLYWHEEL GEARBOX SRF41
- 42. TORQUE POST

TESMEC REF: 828801

HEADSHAFT ASSEMBLY-SINGLE CHAIN

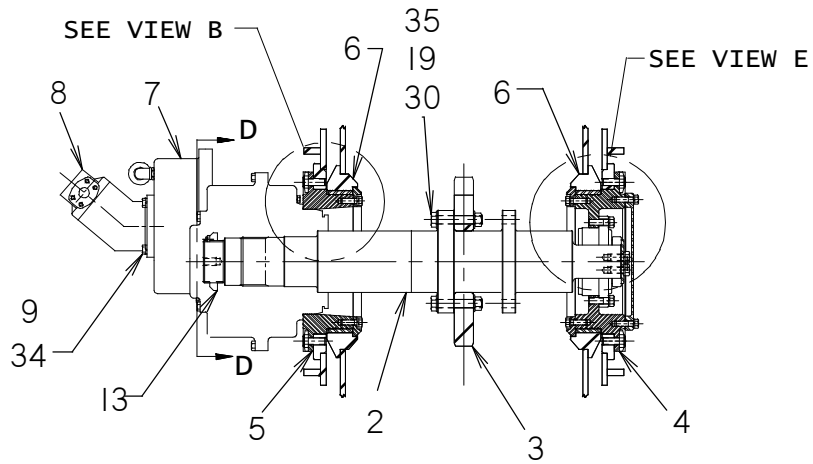
HT220
 BEGINS WITH S/N CMWHT220J80000012



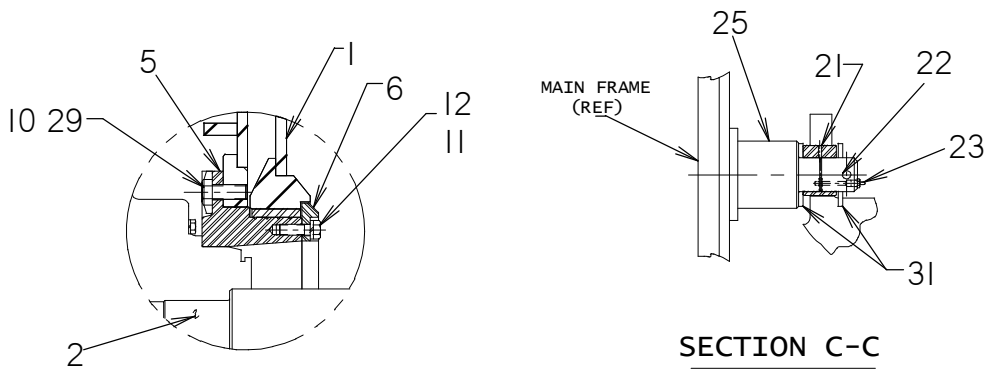
HEADSHAFT ASSEMBLY-SINGLE CHAIN

HT220

BEGINS WITH S/N CMWHT220J80000012

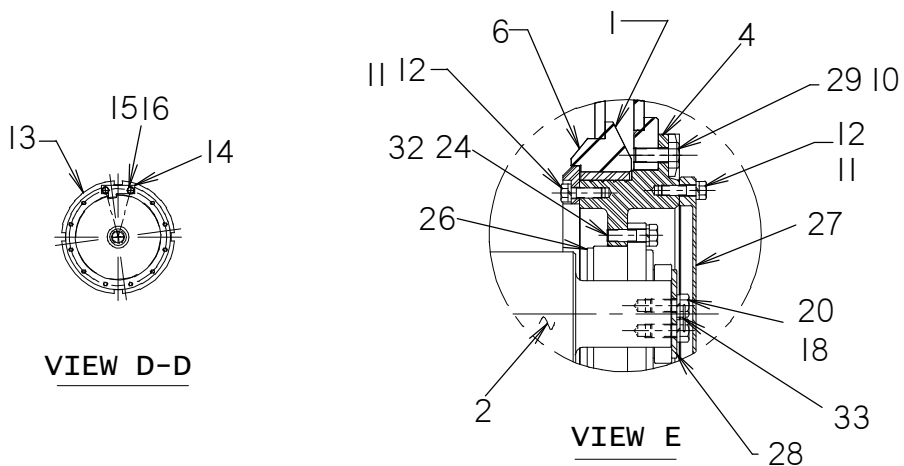


SECTION A-A



VIEW B

SECTION C-C



VIEW D-D

VIEW E

HEADSHAFT ASSEMBLY-SINGLE CHAIN HT220

BEGINS WITH S/N CMWHT220J80000012

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TS713-001	-	INNER SHROUD WELDMENT, HT220	
2. TS2715-004	1	HEADSHAFT, MACHINING	
3. TST00-5500-046	1	SPROCKET, 4.5P, 13 TOOTH	
4. TS2715-005	1	PIVOT BRG & BRG SUPPORT	FOR HEADSHAFT
5. TS350-2715-003	1	PIVOT BEARING	
6. TS350-2715-006	-	SPLIT RETAINER	
7. TST00-5708-065	1	SRF-41 FLYWHEEL BEARBOX	
8. TST00-6000-586	1	MOTOR, 107CC, REXROTH	
9. 106-616	4	HHCS (M16-2 55mm) GR 10.9	
10. TS200-9300-002	24	HEX WASHER	
11. 105-302	24	HHCS (5/8-11 UNC X 2") GR8	
12. 105-385	24	LOCK WASHER (5/8")	
13. TS200-5100-900	1	NUT, MOD., LOCKING A26	
14. TS200-9000-002	1	LOCKING TAB, AN26	
15. 105-197	2	HHCS (1/4-20 UNC X 1") GR8	
16. 105-197	2	LOCK WASHER (1/4")	
17. TS02-6600-012	2	LUBE PLATE, PIVOT BEARING	
18. 106-129	3	LOCK WASHER (M20)	
19. 105-367	12	LOCKNUT (1-8 UNC)	
20. 106-611	3	HHCS (M20-2.5 40mm) GR10.9	
21. TS200-2714-009	1	ECCENTRIC BUSHING	
22. 107-413	1	ROLL PIN (1/2" X 4")	
23. TST00-5300-401	1	GREASE FITTING (1/8NPT)	
24. 105-389	4	LOCK WASHER (3/4")	
25. TS2714-003	-	TORQUE POST, HT220	
26. TST00-5000-002	1	PILOTED FLG BEARING, LB	
27. TS2715-006	1	END CAP, HEADSHAFT	
28. TS2004312-001	1	END CAP	

NOT SHOWN:

TST00-8600-090 - TEMP SENDER, 120°-350°F

FOOTNOTES:

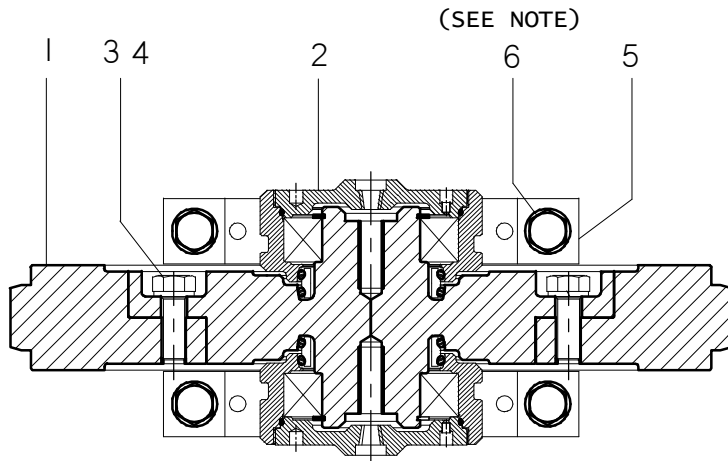
NOTE:

PARTS DISPLAYED FOR REF. ONLY:

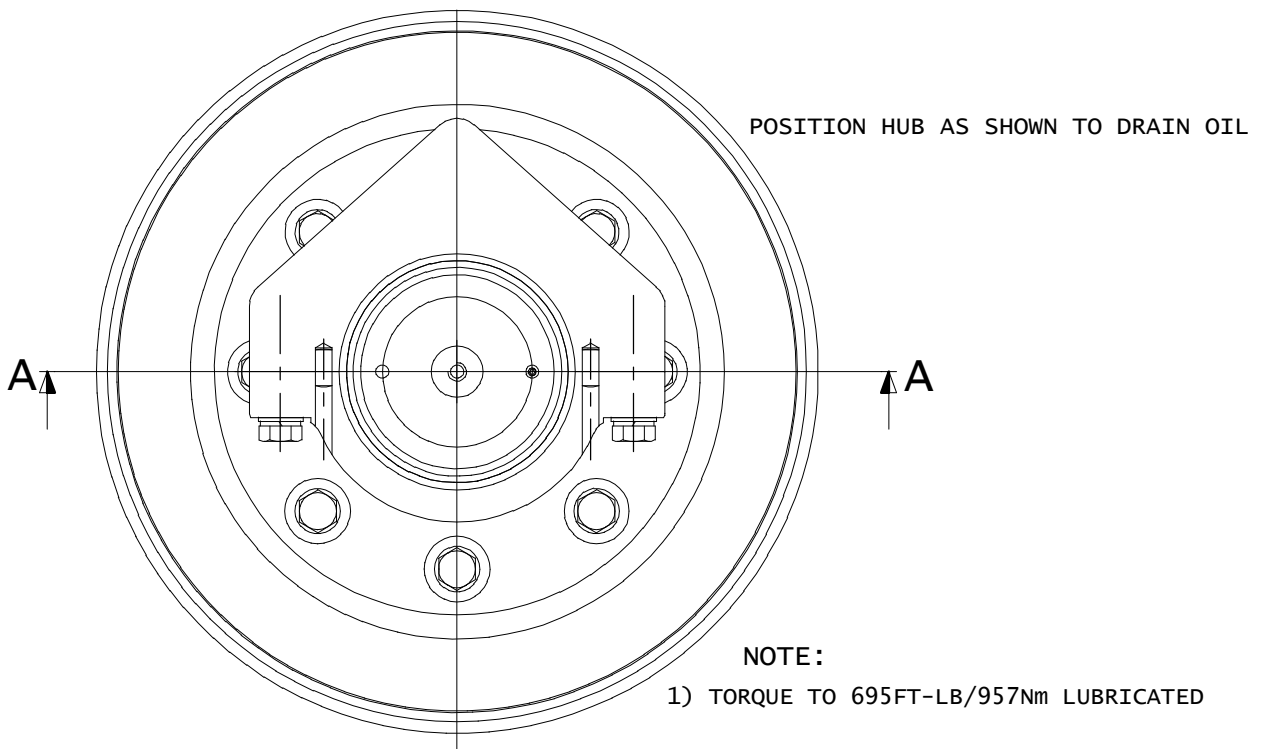
- 29. HHCS (7/8-9 UNC X 5-1/2") GR8 (24X)
- 30. FLAT WASHER (HARDENED) F436 (24X)
- 31. FLAT WASHES (2") (2X)
- 32. HHCS (3/4-10 UNC X 2-1/2") GR8 (4X)
- 33. SAFETY WIRE, SSX 10" (1X)
- 34. LOCK WASHER (M16) (1X)
- 35. HHCS (1-8 UNC X 5-1/2") GR8 (12X)

TESMEC REF: 285-2715-000

TAILWHEEL ASSEMBLY
HT220



SECTION "A-A"



TAILWHEEL ASSEMBLY

HT220

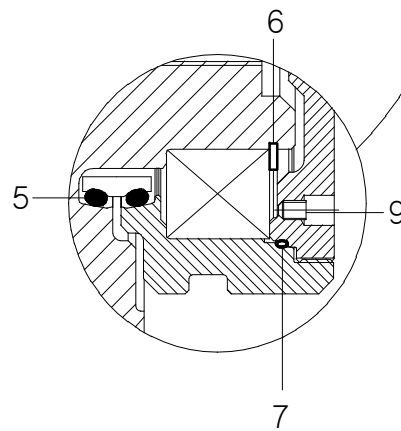
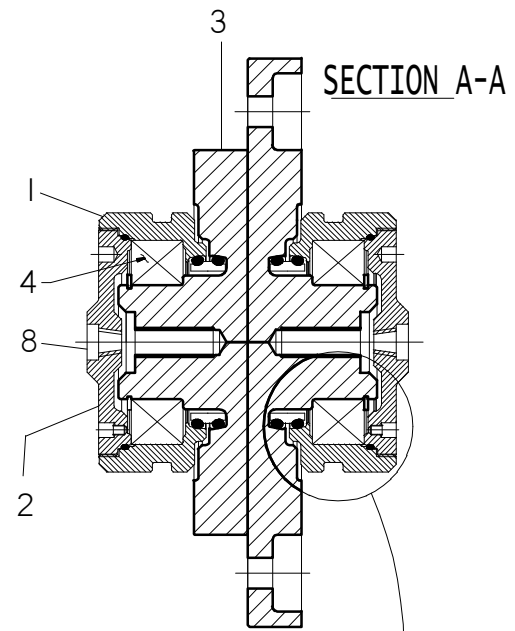
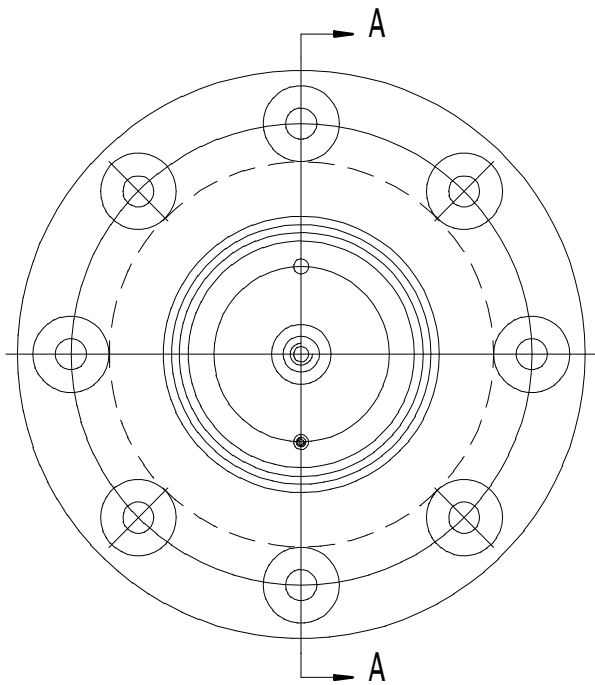
REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TS82858	1	OUTER RING	
2. TS82882	1	CAP, BEARING HOUSING	
3. TS40124071	8	HHCS M24 X 70 UNI 5737 10.9	
4. TS25012025	8	LOCK WASHER D.25 UNI 1751	
5. TS82859	-	CAP, BEARING	
6. 108-038	-	HHCS M24 X 90 UNI 5737 10.9	TS43124090

NOT SHOWN:

FOOTNOTES:

NOTE:
REF. 828810

TAILWHEEL, HUB ASSEMBLY HT220



TAILWHEEL, HUB ASSEMBLY HT220

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TS365271002	2	BEARING HOUSING	
2. TS82084	2	CAP, BEARING HOUSING	
3. TS82860	1	HUB, TAIL WHEEL	
4. TST005100311	2	BEARING	
5. TST005300025	2	SEAL	
6. TST009000023	2	SNAP RING	
7. TST005300024	2	O-RING	
8. TS36400037	2	PLUG 1/2-NPT	
9. TS44908012	2	BOLT S.T.E.I. M8X12 UNI 5923 12.9	

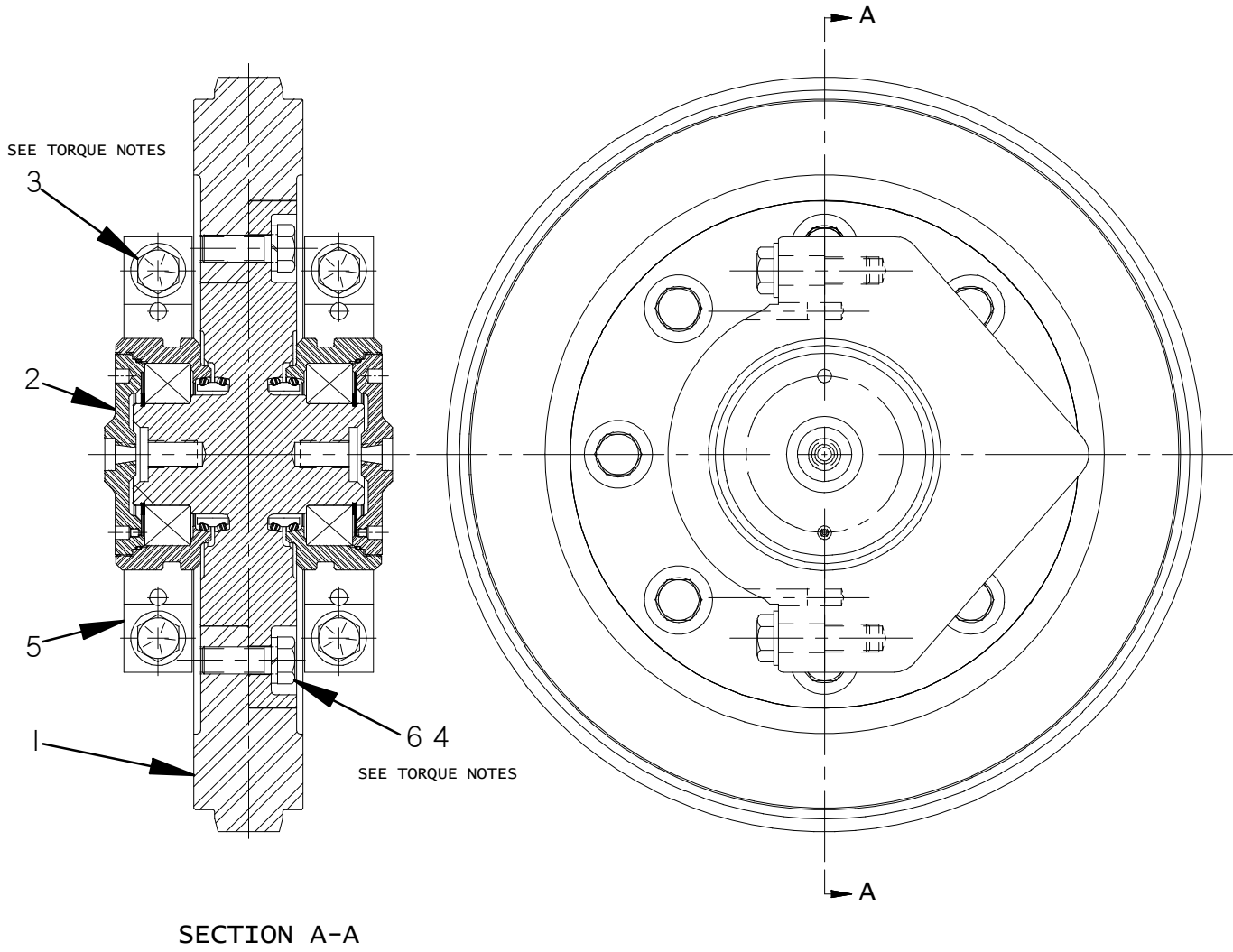
NOT SHOWN:

FOOTNOTES:

NOTE:

REF. 828820

TAILWHEEL ASSEMBLY, BOLT-ON RIM, SINGLE CHAIN
HT220
BEGINS WITH S/N CMWHT220J80000012



TAILWHEEL ASSEMBLY, BOLT-ON RIM, SINGLE CHAIN HT220

BEGINS WITH S/N CMWHT220J80000012

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TS285-2710-101	1	TAILWHEEL RIM, BOLT-ON	
2. TS365-2710-501	1	HUB ASSEMBLY	
3. 105-935	-	HHCS (1-8 UNC X 3-1/2") GD8	TORQUE TO 695 ft.-lbs., LUBED
4. 105-374	8	LOCK WASHER (1")	
5. TS365-2711-007	-	TAILWHEEL MOUNTING BLK	

NOT SHOWN:

FOOTNOTES:

PARTS DISPLAYED FOR REFERENCE ONLY:

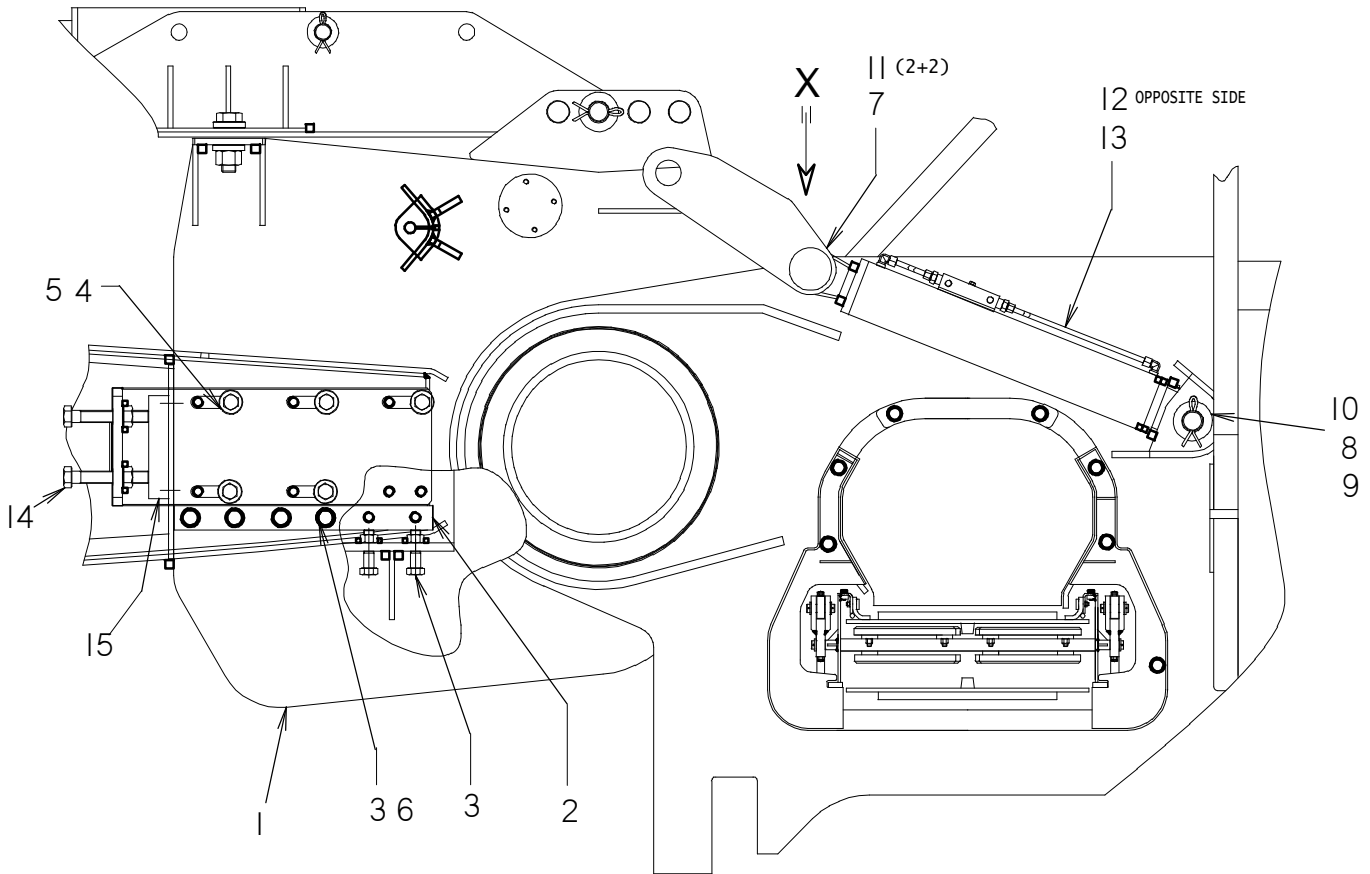
6. HHCS (1-8 UNC X 2-3/4") GD 8	(8X)	TORQUE TO 695 ft.-lbs., LUBED
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NOTE:

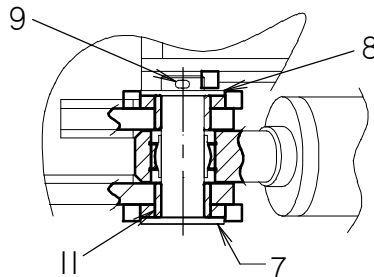
REF. 285-2710-100

INSIDE SHROUD

HT220



DETAIL VIEW "X"



INSIDE SHROUD

HT220

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TS82933	1	INSIDE SHROUD	
2. TS82877	2	SLIDE BARS	
3. TS43124090	24	HHCS M24X90 UNI5737 10.9	
4. 108-038	-	HHCS M24X90 UNI5737 10.9	TS43124090
5. TS82936	-	CLAMP WASHER	
6. TS25010024	12	FLAT WASHER D.25 UNI 6592	
7. TS83570	2	PIN ø50 X 174	
8. TS25010054	6	FLAT WASHER D.54 UNI 6592	
9. TS25410100	6	COTTER PIN	
10. TS82935	2	PIN ø50 X 288	
11. TS82932	4	BUSHING	
12. TS83542	1	CYLINDER	
13. TS83541	1	CYLINDER	
14. TS83639	-	HHCS M30X200 UNI5737 10.9	
15. TS365-2711-010	6	BOOM SPACER	

NOT SHOWN:

TS83272	1	GUARD, RUBBER	NOT SHOWN
TS83273	1	CLAMP PLATE	NOT SHOWN
106-079	7	HHCS M10 X 30 UNI 5737 8.8	NOT SHOWN-TS40310030
106-390	7	FLAT WASHER D.10.5 UNI 6592	NOT SHOWN-TS25010010

FOOTNOTES:

NOTE:

REF. 834561

CROSS CONVEYOR INSTALLATION

HT220

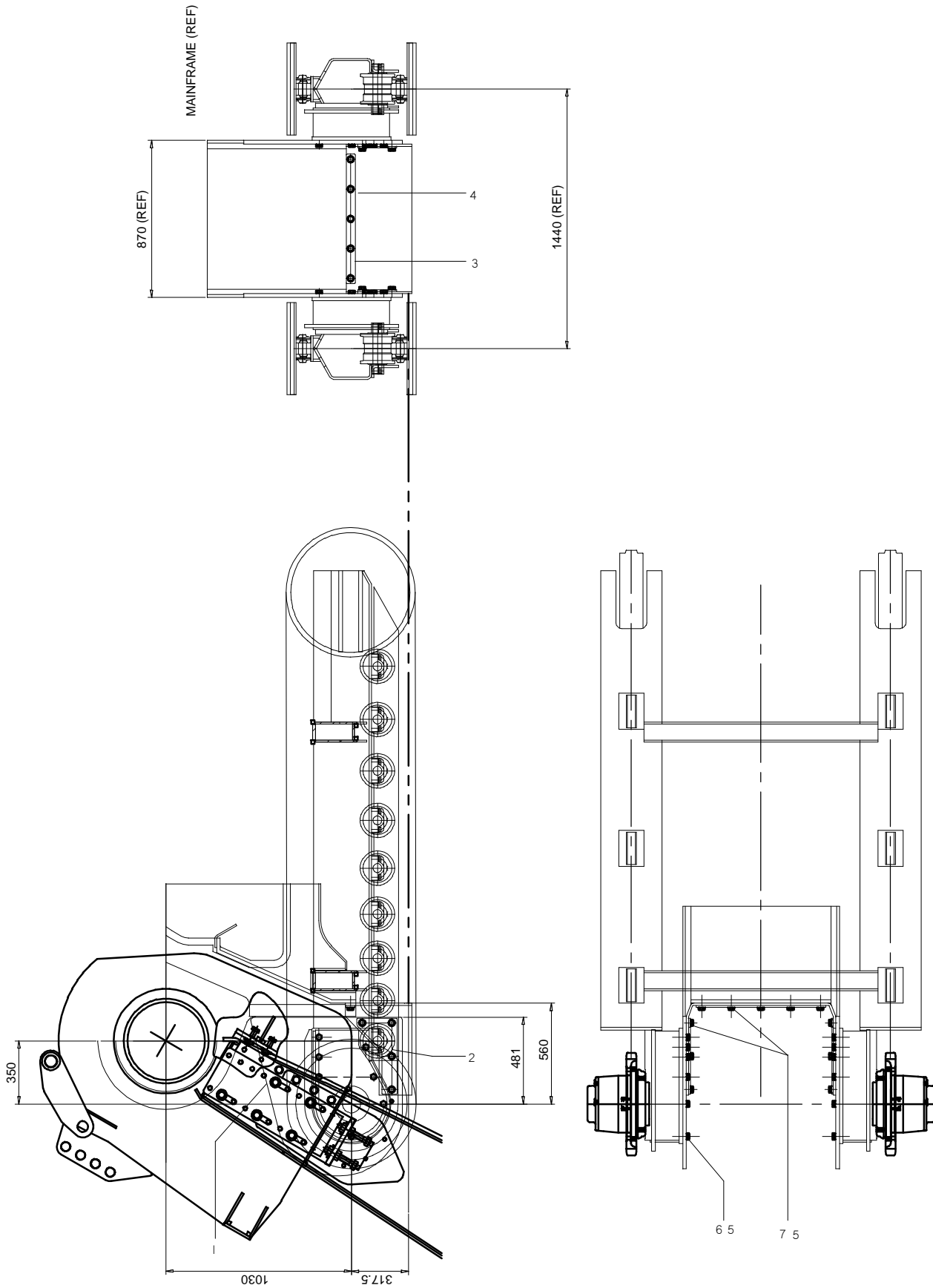
REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TS84084	1	CONVEYOR ASSEMBLY	
2. TS84085	1	CONVEYOR SHIFT ASSEMBLY	
3. TS82996	1	ROCK GUARD, REAR	
4. TS42716055	5	FHSCS M26 X 55 UNI 5933 10.9	
5. 106-077	27	HEX NUT M16 UNI 5588	TS26200116
6. TS25010017	5	FLAT WASHER D.17 UNI 6592	
7. TS25012017	10	LOCK WASHER D.17 UNI 1751	
8. TS99T3	1	CONVEYOR GUARD	
9. TS82992	1	CONVEYOR GUARD	
10. 106-345	20	HHCS M20 X 50 UNI 5737 8.8	TS40120050
11. 106-627	28	FLAT WASHER D.21 UNI 6592	TS25010021
12. TS25012021	28	LOCK WASHER D.21 UNI 1751	
13. TS82999	2	CLAMP BAR	
14. TS82998	2	RUBBER PROTECTION WINDOW	
15. TS83092	4	RUBBER GUARD	
16. 108-217	8	HHCS M20 X 75 UNI 5737 8.8	
17. TS82994	1	CONVEYOR GUARD	
18. TS82995	1	CONVEYOR GUARD	
19. TS82997	1	ROCK GUARD, FRONT	
20. 106-340	5	HHCS M16 X 50 UNI 5737 8.8	TS40116050
21. TS36400500	2	GREASE FITTING 1/8" NPT	

NOT SHOWN:
TS83992 1 GR. INSTALL., CONVEYOR CROSSSECTION

FOOTNOTES:

NOTE:
REF. 840830

SCOOP ASSEMBLY HT220



SCOOP ASSEMBLY

HT220

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TS82948	2	SCOOP PLATE	
2. TS82945	2	CLAMP PLATE	
3. TS82946	1	CLAMP PLATE	
4. TS82947	1	RUBBER GUARD	
5. 106-345	27	HHCS M20 X 50 UNI 5739	TS40320050
6. TS25012021	14	FLAT WASHER D.21 UNI 1751	
7. 106-627	13	LOCK WASHER D.21 UNI 6592	TS25010021

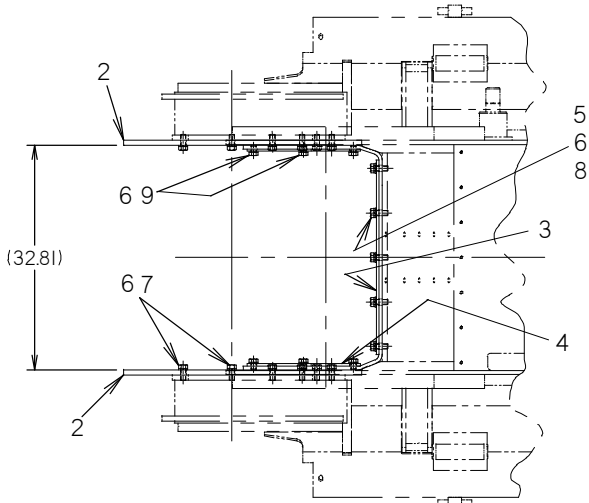
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FOOTNOTES:

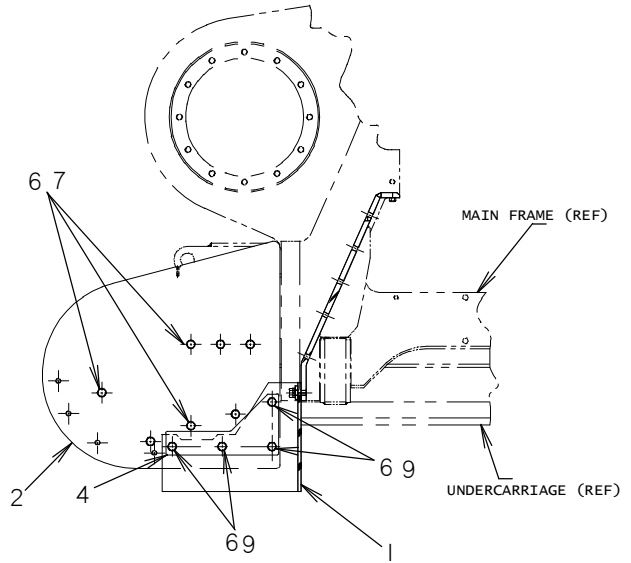
NOTE:
REF. 828870

SCOOP PLATE INSTALLATION

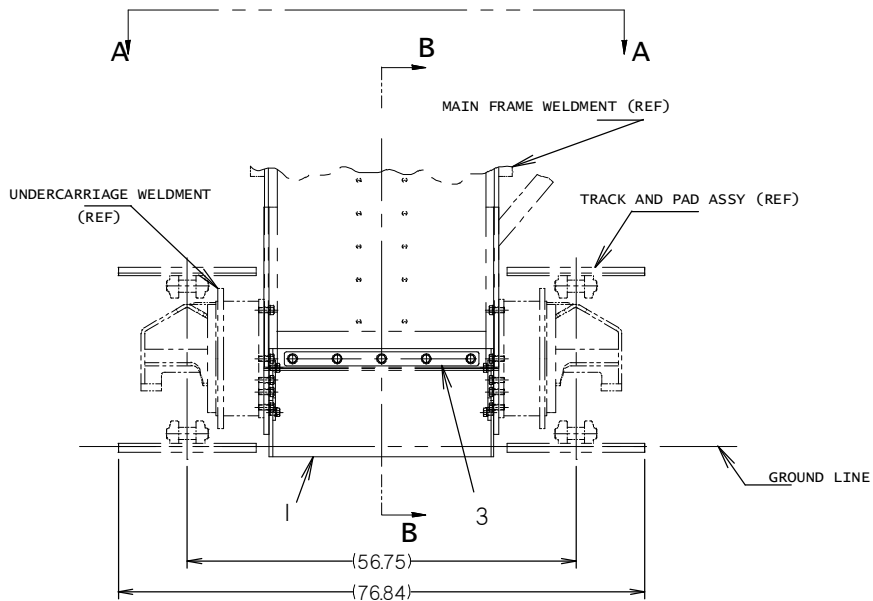
HT220
BEGINS WITH S/N CMWHT220J80000012



VIEW A-A
(SOME ITEMS NOT SHOWN FOR CLARITY)



SECTION B-B
(SOME ITEMS NOT SHOWN FOR CLARITY)



SCOOP PLATE INSTALLATION

HT220

BEGINS WITH S/N CMWHT220J80000012

REF PART NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	TS2718-004	1	DIRT/ROCK SHIELD, SCOOP	
2.	TS2718-001	2	SCOOP SIDE PLATE	
3.	TS2718-003	1		
4.	TS2715-005	1	PIVOT BRG & BRG SUPPORT	
5.	105-961	5	HHCS (3/4-10 UNC X 2"	
6.	105-389	27	LOCK WASHER (3/4")	
7.	105-1176	14	HHCS (3/4-10 UNC X 1-3/4")	

NOT SHOWN:

FOOTNOTES:

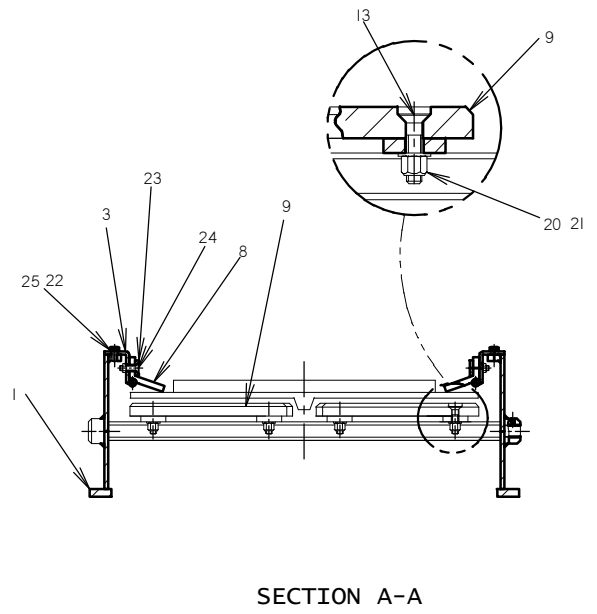
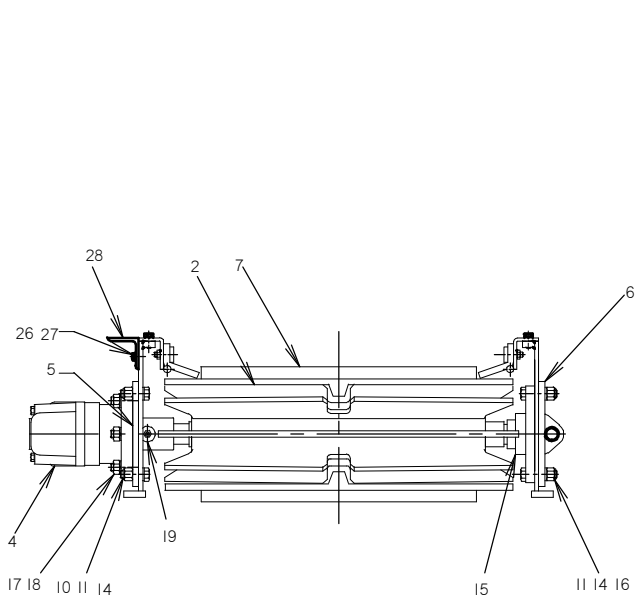
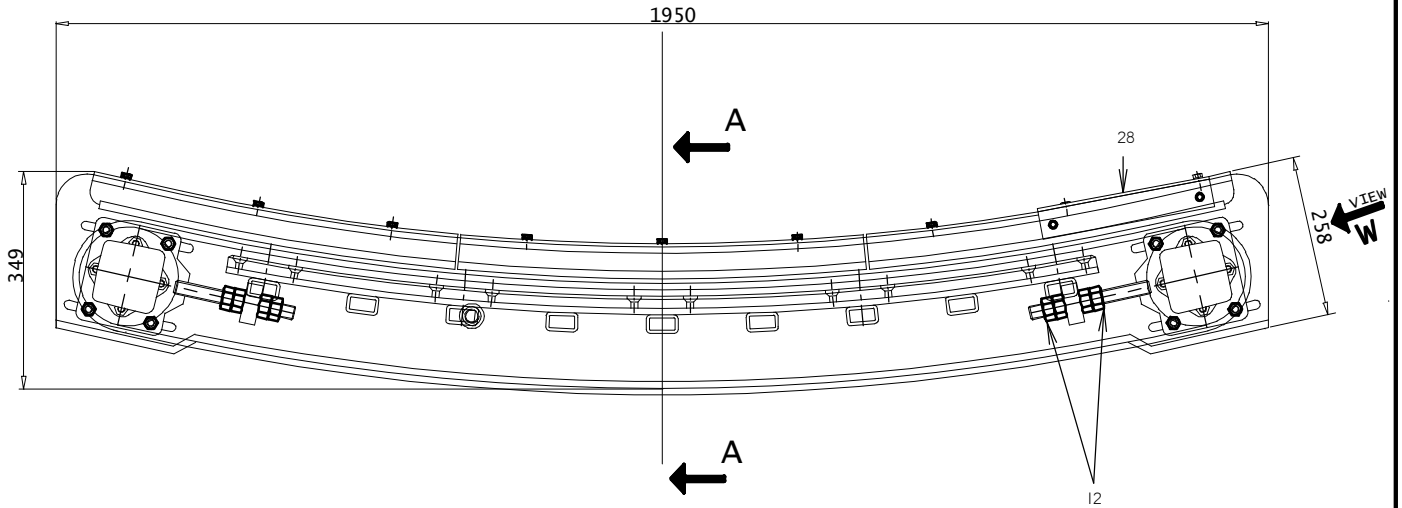
NOTE:

PARTS DISPLAYED FOR REFERENCE ONLY:

- 8. FLAT WASHER (3/4") HARDENED, F436 (5X)
- 9. HHCS (3/4-10 UNC X 1") (8X)

TESMEC REFER: 285-2718-000

CROSSOVER ASSEMBLY HT220



CROSSOVER ASSEMBLY

HT220

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TS84086	1	CONVEYOR FRAME	
2. TS83039	2	PULLEY	
3. TS84304	2	SUPPORT ANGLE	
4. TS13100084	-	MOTOR	
5. TS82573	2	MOTOR SUPPORT	
6. TS82567	2	BEARING SUPPORT	
7. TS84087	1	CONVEYOR BELT	
8. TS84088	2	FLASHING	
9. TS84305	2	SIDE PLATE	
10. 105-247	8	HHCS M12X35 UNI 5737	TS40112035
11. 106-391	16	FLAT WASHER ø12 UNI 6592	TS25010012
12. 108-050	16	HEX NUT M22 UNI 5589	TS26200522
13. TS42710045	40	FHSCS M10X45 UNI 5933 10.9	
14. 106-685	16	HEX LOCK NUT M12	TS26000042
15. TST00-5000-022	2	BEARING	
16. 106-334	8	HHCS M12X50 UNI 5737 8.8	TS40112050
17. 106-089	8	HEX NUT M12 UNI 5588 8.8	TS26200112
18. 106-030	8	LOCK WASHER ø12 UNI 1751	TS25012012
19. TS31000000	2	GREASE FITTING M10X1 UNI 7663	
20. 106-390	40	FLAT WASHER ø10 UNI 6592	TS25010010
21. 106-175	40	HEX LOCK NUT M10	TS26000029
22. 106-232	18	HHCS M8X16 UNI 5739 8.8	TS40308016
23. TS84089	2	CLAMP PLATE	
24. TS42708030	18	FHSCS M8X30 UNI 5933 10.9	
25. TS25012008	18	LOCK WASHER ø8.4 UNI 1751	
26. TS40306012	2	HHCS M6X15 UNI 5739 8.8	
27. TS25012006	2	LOCK WASHER D. 6,4 UNI 1751	
28. TS85078	1	MOUNT	

NOT SHOWN:

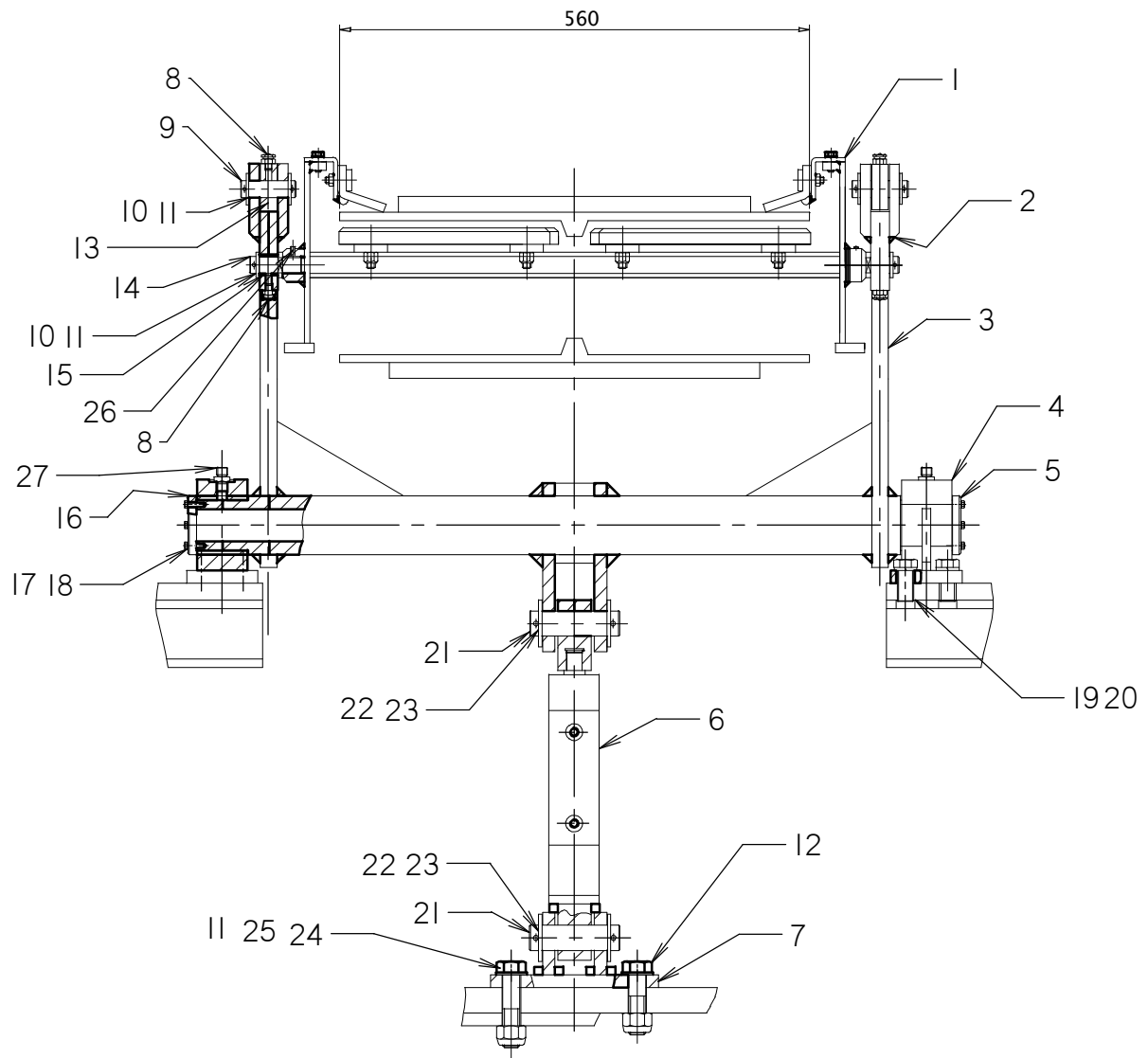
FOOTNOTES:

NOTE:

REF. 840840

CONVEYOR SHIFT ASSEMBLY

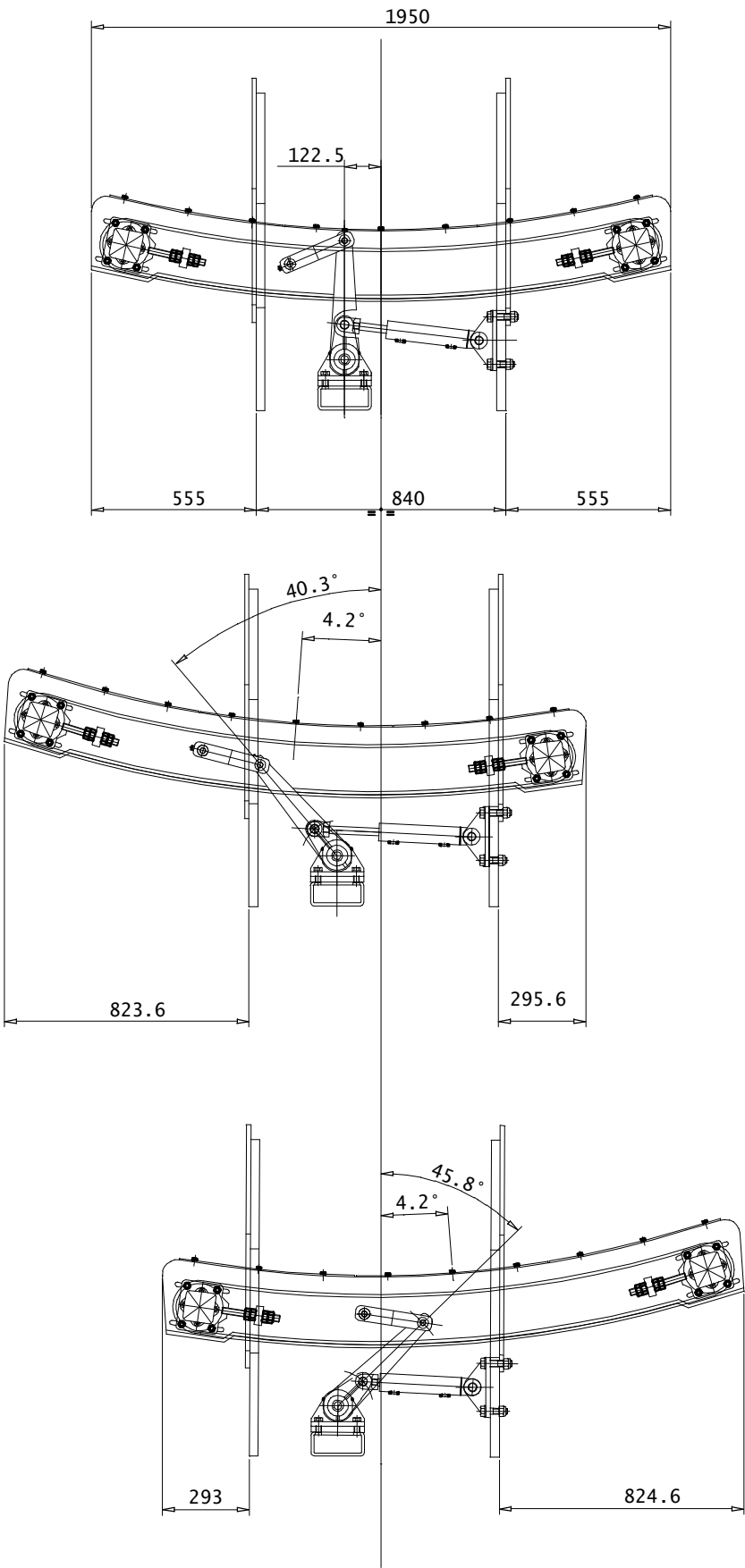
HT220



CONVEYOR SHIFT ASSEMBLY

HT220

SEEN FROM OPPOSITE SIDE



CONVEYOR SHIFT ASSEMBLY HT220

REF PART NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	TS84084	-	CONVEYOR ASSEMBLY	
2.	TS83114	2	CLEVIS	
3.	TS83115	1	PIVOT ARM	
4.	TS83116	2	BEARING BLOCK	
5.	TS83117	2	END CAP	
6.	TS83540	1	CYLINDER	
7.	TS83119	1	PIVOT MOUNT	
8.	TS31000034	4	GREASE FITTING-A M8X1 YBI 7663	
9.	TS83120	2	PIN	
10.	TS25404040	6	COTTER PIN-4X40 UNI 1336	
11.	106-627	10	FLAT WASHER-D.21 UNI 6592	TS25010021
12.	108-217	2	HHCS M20X75 UNI 5737 8.8	TS40120075
13.	TS83128	2	BUSHING	
14.	TS83121	2	PIN	
15.	TS83129	2	BUSHING	
16.	TS83130	2	BUSHING	
17.	107-692	8	HHCS M5X20 UNI 5739 8.8	TS40305020
18.	106-429	8	LOCKWASHER D.5.3 UNI 1751	TS25012005
19.	TS40320035	8	HHCS M20X35 UNI 5739 8.8	
20.	TS25012021	8	LOCKWASHER D.21 UNI 1751	
21.	TS83122	2	PIN	
22.	TS25405060	4	COTTER PIN 5X60 UNI 1336	
23.	TS25010030	4	FLAT WASHER D.31 UNI 6592	
24.	106-347	2	HHCS M20X90 UNI 5737 8.8	TS10420090
25.	106-665	4	HEX LOCKNUT M20	TS26000080
26.	TS45305012	2	SET SCREW M5X12 UNI 5925	
27.	TS05701014	2	GREASE FITTING 1/4" GAS	

NOT SHOWN:

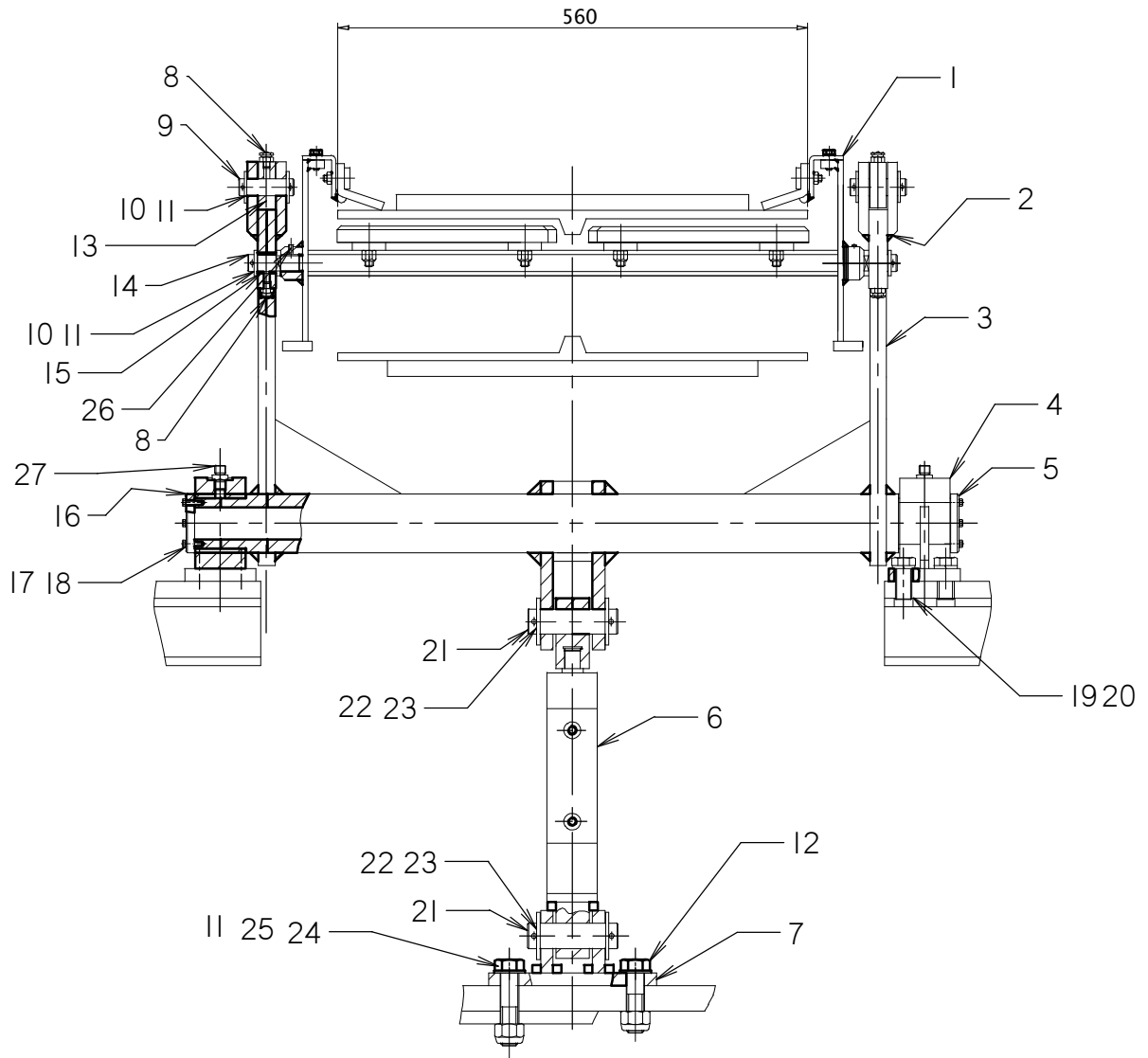
FOOTNOTES:

NOTE:

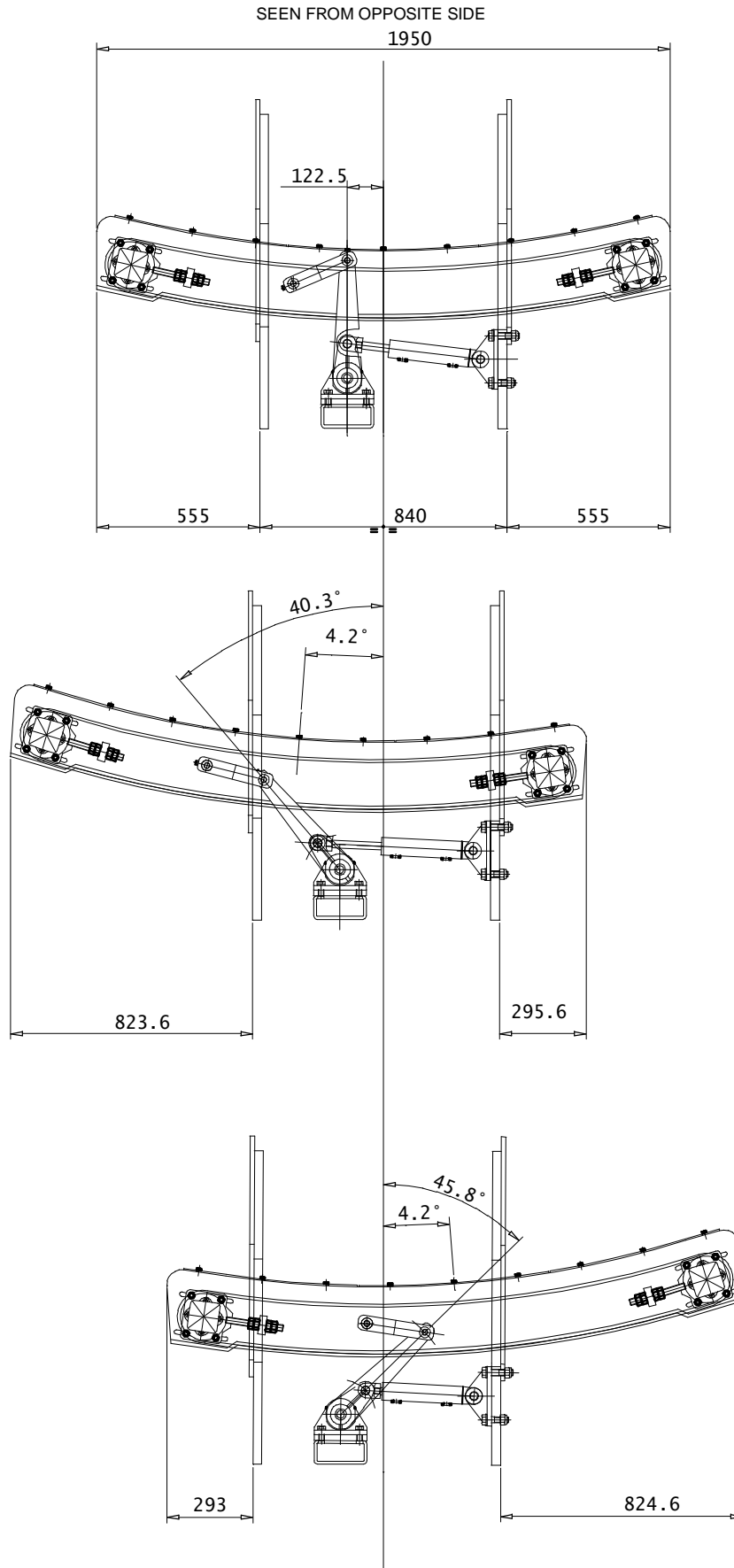
REF. 840850

CONVEYOR SHIFT ASSEMBLY

HT220



CONVEYOR SHIFT ASSEMBLY HT220



CONVEYOR SHIFT ASSEMBLY

HT220

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TS84084	-	CONVEYOR ASSEMBLY	
2. TS83114	2	CLEVIS	
3. TS83115	1	PIVOT ARM	
4. TS83116	2	BEARING BLOCK	
5. TS83117	2	END CAP	
6. TS83540	1	CYLINDER	
7. TS83119	1	PIVOT MOUNT	
8. TS31000034	4	GREASE FITTING-A M8X1 YBI 7663	
9. TS83120	2	PIN	
10. TS25404040	6	COTTER PIN-4X40 UNI 1336	
11. 106-627	10	FLAT WASHER-D.21 UNI 6592	TS25010021
12. 108-217	2	HHCS M20X75 UNI 5737 8.8	TS40120075
13. TS83128	2	BUSHING	
14. TS83121	2	PIN	
15. TS83129	2	BUSHING	
16. TS83130	2	BUSHING	
17. 107-692	8	HHCS M5X20 UNI 5739 8.8	TS40305020
18. 106-429	8	LOCKWASHER D.5.3 UNI 1751	TS25012005
19. TS40320035	8	HHCS M20X35 UNI 5739 8.8	
20. TS25012021	8	LOCKWASHER D.21 UNI 1751	
21. TS83122	2	PIN	
22. TS25405060	4	COTTER PIN 5X60 UNI 1336	
23. TS25010030	4	FLAT WASHER D.31 UNI 6592	
24. 106-347	2	HHCS M20X90 UNI 5737 8.8	TS10420090
25. 106-665	4	HEX LOCKNUT M20	TS26000080
26. TS45305012	2	SET SCREW M5X12 UNI 5925	
27. TS05701014	2	GREASE FITTING 1/4" GAS	

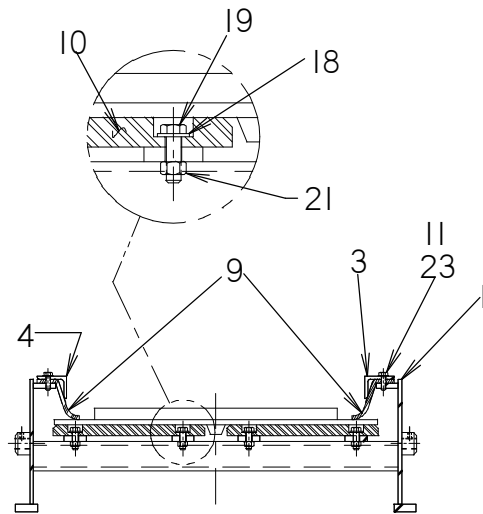
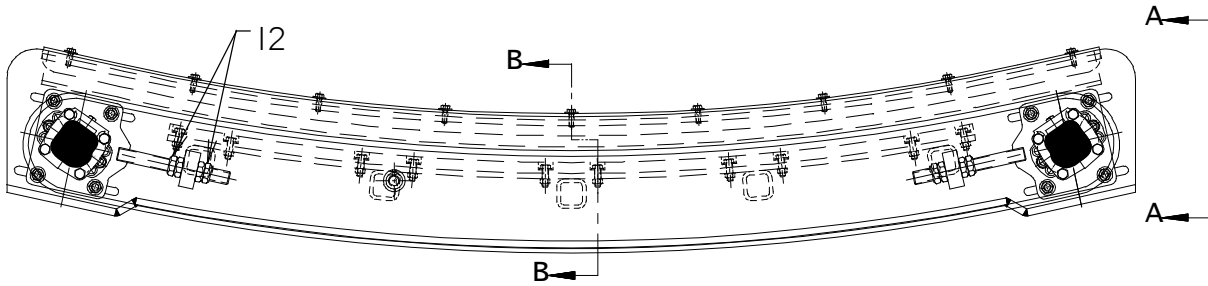
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FOOTNOTES:

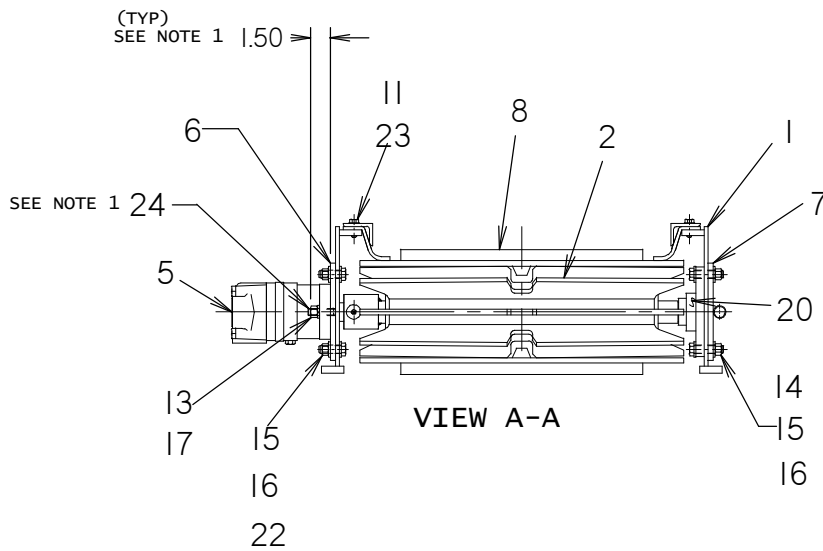
NOTE:

REF. 840850

CROSS CONVEYOR ASSEMBLY
 HT220
 BEGINS WITH S/N CMWHT220J80000012



VIEW B B



VIEW A-A

NOTES:

- ITEM #24 TO BE INSTALLED @ ASSEMBLY BY TESMEC, USING DIMENSION SHOWN. AFTER INSTALLATION WELD IT FROM THE BACK SIDE & GRIND SMOOTH.

CROSS CONVEYOR ASSEMBLY

HT220

BEGINS WITH S/N CMWHT220J80000012

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TS4903-001	1	CROSS CONVEYOR FRAME WELDMENT	
2. TS4902-004	1	DRIVE ROLLER ASSEMBLY	
3. TS4900-003	-	FLASHING RETAINER, FRONT	
4. TS365-4903-303	-	FLASHING RETAINER, REAR	
5. TST00-6000-587	2	DRIVE MOTOR, SAUER-DANFOSS	
6. TS4903-006	2	MOTOR MOUNT PLATE	
7. TS365-4903-105	2	BEARING MOUNT PLATE	
8. TST00-4900-159	1	CONVEYOR BELT, ENDLESS	
9. TS285-4903-008	2	FLASHING, CROSS CONVEYOR, HT220	
10. TS4903-007	2	BELT SLIDE, CROSS CONVEYOR	
11. 105-094	18	HHCS (5/16-18 UNC X 1")	
12. 107-655	16	JAMNUT (7/8-9 UNC)	
13. 105-021	4	NUT (1/2-13 UNC)	
14. 105-229	4	HHCS (1/2-13 UNC X 2")	
15. 107-065	24	FLAT WASHER (1/2") HARDENED F436	
16. 105-065	12	LOCKNUT (1/2-13 UNC)	
17. 105-070	4	LOCK WASHER (1/2")	
18. 107-368	40	FLAT WASHER (3/8") HARDENED F436	
19. 105-052	40	HHCS (3/8-16 UNC X 1-1/4")	
20. TST00-5000-022	2	FLG BEARING,2-BOLT, DODGE SC 1-1/4"	
21. 105-047	40	LOCKNUT (3/8-16 UNC)	
22. 105-048	8	HHCS (1/2-13 UNC X 1-1/2")	
23. 105-117	18	FLAT WASHER (5/16")	

NOT SHOWN:

FOOTNOTES:

NOTE:

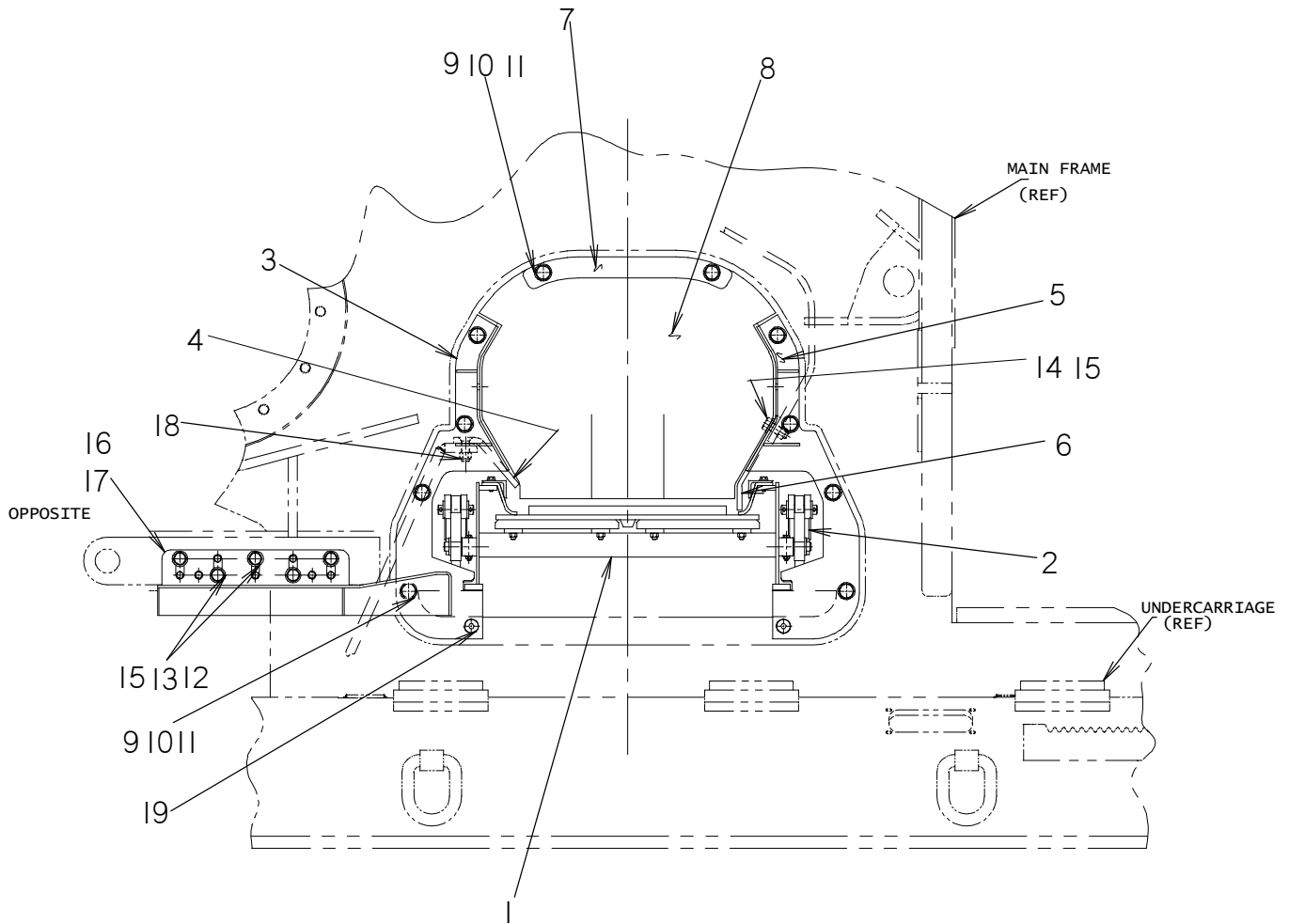
PARTS DISPLAYED FOR REF. ONLY:

24. ALL THREAD (1/2-13 UNC X 1-3/4") (4X)

TESMEC REF: 285-4903-000

CROSS CONVEYOR INSTALLATION

HT220
BEGINS WITH S/N CMWHT220J80000012



CROSS CONVEYOR INSTALLATION

HT220

BEGINS WITH S/N CMWHT220J80000012

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TS4903-000	1	CROSS CONVEYOR ASSEMBLY	
2. TS4902-100	1	CONVEYOR SHIFT ASSEMBLY	
3. TS4900-001	2	CONVEYOR GUARD/HOLD DOWN, LH	
4. TS1000-037	-	SCOOP PLATE, TOP EDGE, BOLT-ON	
5. TS4900-002	2	CONVEYOR GUARD/HOLD DOWN, RH	
6. TS1000-036	-	FRONT ROCK GUARD	
7. TS1600-010	2	RETAINER, DUST SHIELD, CONV. WINDOW	
8. TS1600-011	2	DUST SHIELD, CONVEYOR WINDOW	
9. 105-320	20	HHCS (3/4-10 UNC X 2-1/4")	
10. 106-949	20	FLAT WASHER (3/4") HARDENED F436	
11. 105-389	20	LOCK WASHER (3/4")	
12. 105-385	10	LOCK WASHER (5/8")	
13. 105-358	10	HHCS (5/8-11 UNC X 1-1/2")	
14. 105-456	5	HHCS (5/8-11 UNC X 1-3/4")	
15. 108-222	15	FLAT WASHER (5/8") HARDENED F436	
16. TS000-046	1	ROCK DEFLECTOR, UNDERCARRIAGE, RH	
17. TS000-045	1	ROCK DEFLECTOR, UNDERCARRIAGE, LH	

NOT SHOWN:

FOOTNOTES:

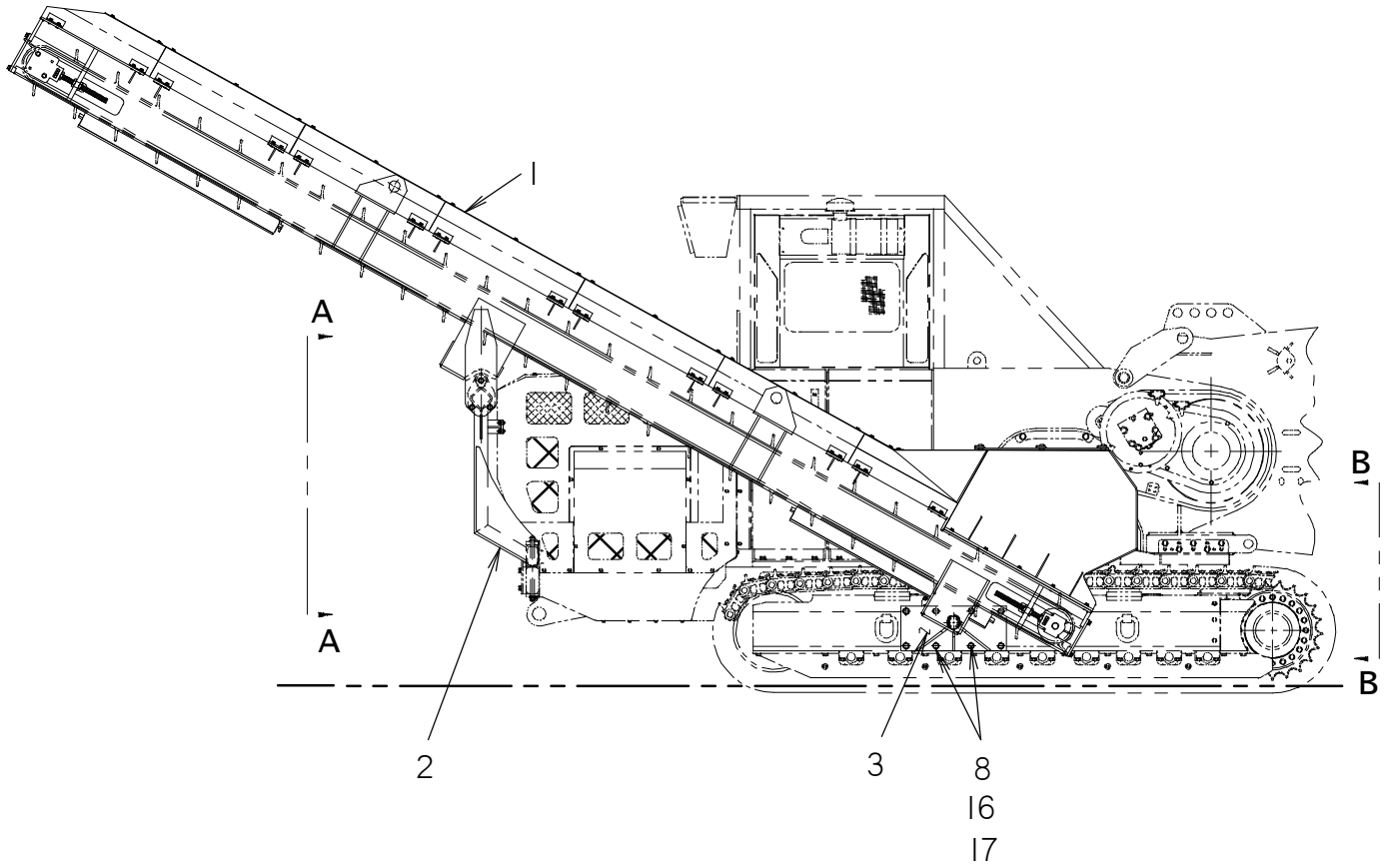
NOTE:

- 18. SFCHCS (5/8-11 UNC X 3") (5X)
- 19. SFCHCS (5/8-11 UNC X 1-3/4") (5X)

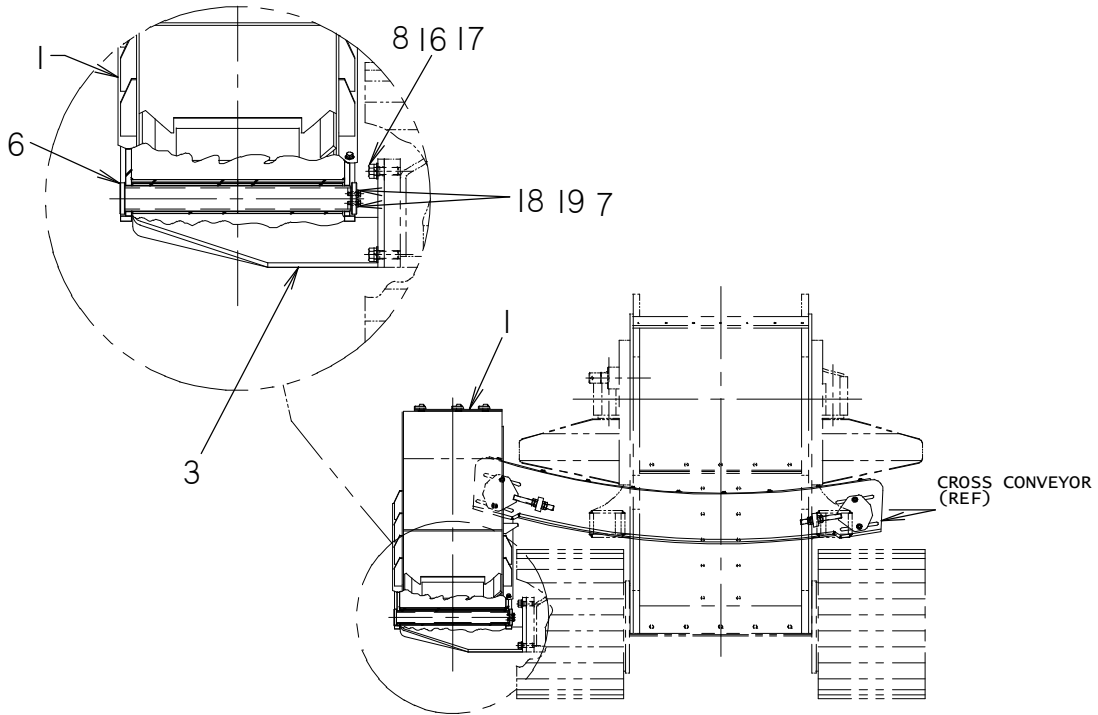
TESMEC REF: 285-4900-000

TRUCK CONVEYOR INSTALLATION

HT220
BEGINS WITH S/N CMWHT220J80000012

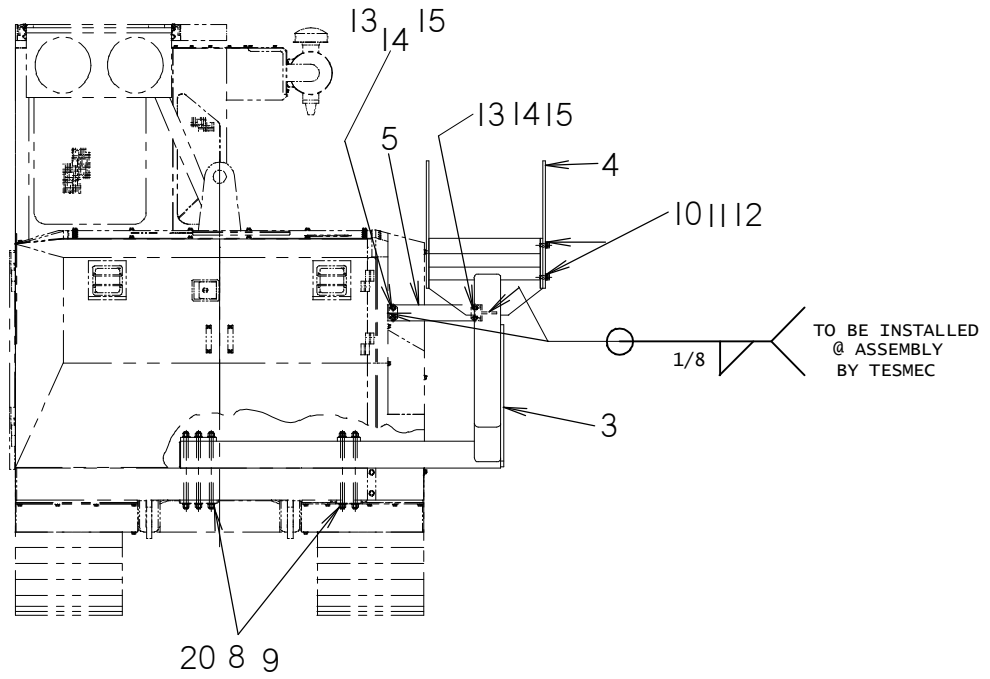


TRUCK CONVEYOR INSTALLATION
 HT220
 BEGINS WITH S/N CMWHT220J80000012



VIEW B-B

SOME ITEMS OMITTED FOR CLARITY



VIEW A-A

TRUCK CONVEYOR IS NOT SHOWN FOR CLARITY

TRUCK CONVEYOR INSTALLATION

HT220

BEGINS WITH S/N CMWHT220J80000012

REF PART NO.	NUMBER	QTY	DESCRIPTION	REMARKS
1.	TS4907-050	1	TRUCK CONVEYOR ASSEMBLY	
2.	TS4907-032	1	FRT SUPPORT, TRUCK CONVEYOR	
3.	TS4907-031	1	REAR SUPPORT, TRUCK CONVEYOR	
4.	TS4907-033	-	REMOVABLE STOP PLATE, FRT SUPPORT	
5.	TS4907-034	-	MOUNT PLATE, FRT SUPPORT	
6.	TS4907-034	1	PIN, REAR SUPPORT, TRUCK CONVEYOR	
7.	105-091	2	LOCK WASHER (5/16")	
8.	106-949	18	FLAT WASHER (3/4") HARDENED, F436	
9.	105-953	10	LOCKNUT (3/4-10 UNC)	
10.	105-400	3	HHCS (5/8-11 UNC X 1-1/4")	
11.	108-222	3	FLAT WASHER (5/8") HARDENED, F436	
12.	105-385	3	LOCK WASHER (5/8")	
13.	105-052	4	HHCS (3/8-16 UNC X 1-1/4")	
14.	105-096	8	FLAT WASHER (3/8")	
15.	105-047	4	LOCKNUT (3/8-16 UNC)	
16.	105-320	8	HHCS (3/4010 UNC X 2-1/4")	
17.	105-389	8	LOCK WASHER (3/4")	
18.	105-095	2	HHCS (5/16-18 UNC X 1")	
19.	105-117	2	FLAT WASHER (5/16")	

NOT SHOWN:

FOOTNOTES:

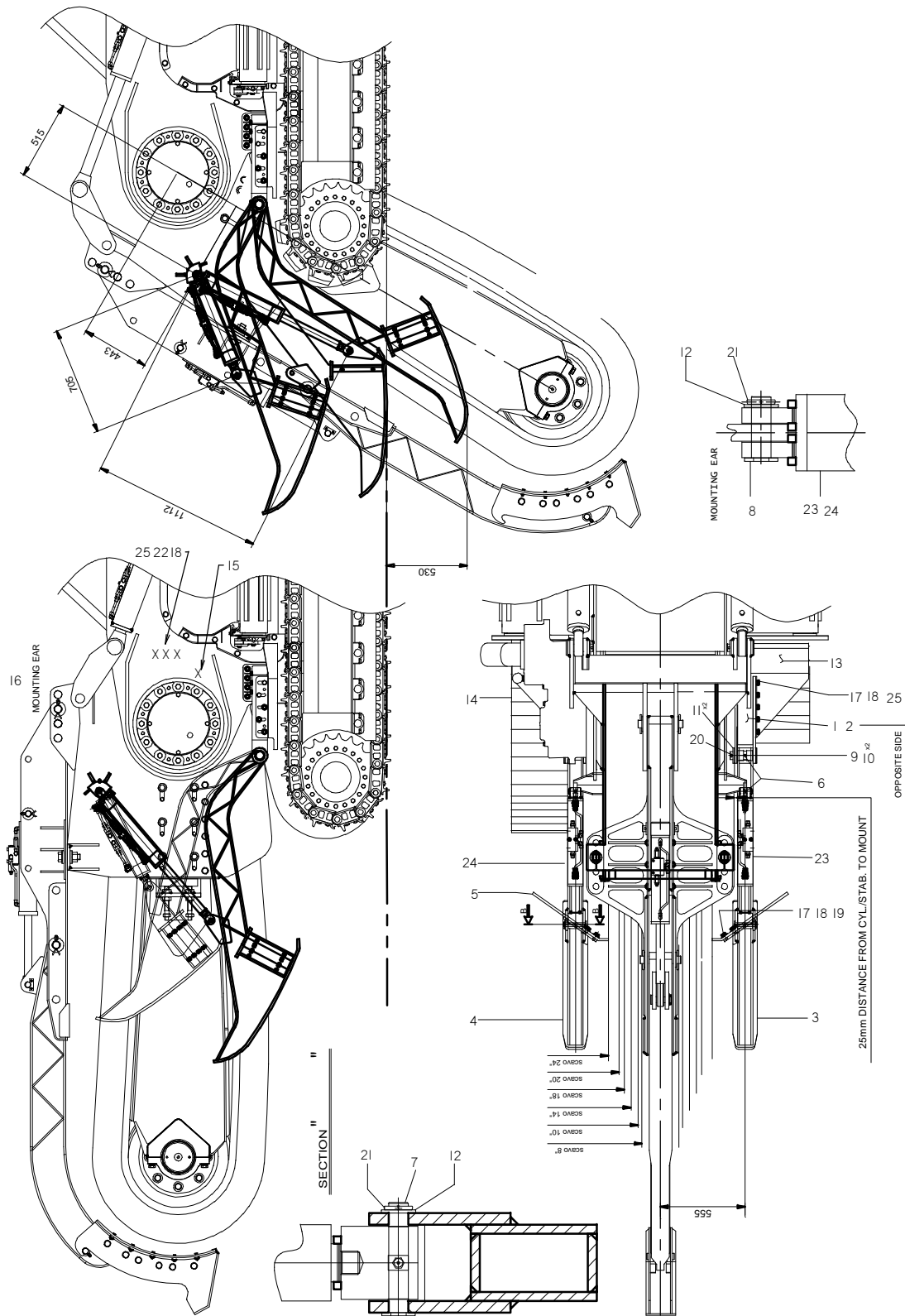
NOTE:

PARTS DISPLAYED FOR REF. ONLY:

20. ALL THREAD (3/4-10 UNC X 14-1/2") (5X)

TESMEC REF: 285-4907-000

STABILIZER ASSEMBLY HT220



STABILIZER ASSEMBLY

HT220

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TS87941	1	SUPPORT DX	
2. TS87942	1	SUPPORT SX	
3. TS87939	1	STABILIZER DX	
4. TS87940	1	STABILIZER SX	
5. TS87944	2	DRAG PLATE	
6. TS31000000	4	GREASE FITTING M10X1	
7. TS88298	2	PIN, CYLINDER ø25.4	
8. TS83844	2	PIN, CYLINDER ø25.4	
9. TS83570	2	PIN ø50	
10. TS82932	4	BUSHING	
11. TS25010050	4	FLAT WASHER D.52 UNI 6592	
12. 106-144	4	FLAT WASHER D 1" 8.8	TSU25010025
13. TS87987	1	GUARD DX	
14. TS87988	1	GUARD SX	
15. TS83281	-	MOUNT	
16. TS87943	-	MOUNT, CYLINDER	
17. 105-998	26	HHCS M16 X 40 5739 8.8Z	TS41316040
18. TS25112017	42	LOCK WASHER D17 UNI 1751Z	
19. TS25016068	16	FLAT WASHER D 16/48	
20. TS25410080	2	COTTER PIN 10X80 UNI 1336	
21. TS25404060	2	COTTER PIN 4X60 UNI 1336	
22. TS41116075	16	HHCS M16X75 5737 8.8Z	
23. TS87131	1	CYLINDER DX	
24. TS87130	1	CYLINDER SX	
25. TS25110016	26	FLAT WASHER D17X30 UNI 6592Z	

NOT SHOWN:

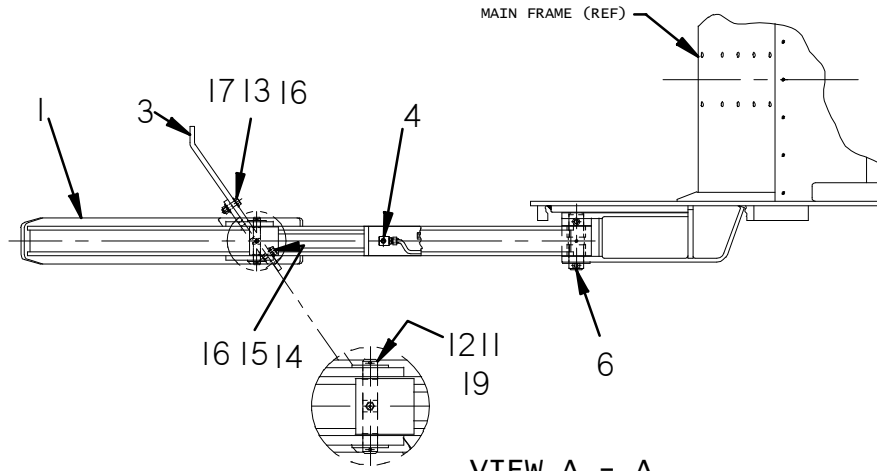
FOOTNOTES:

NOTE:
REF. 882990

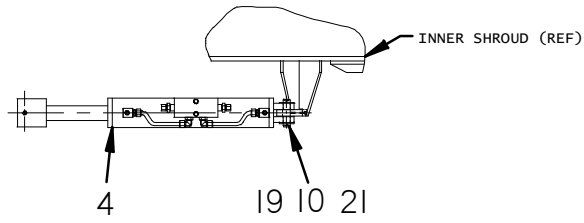
STABILIZER INSTALLATION

HT220

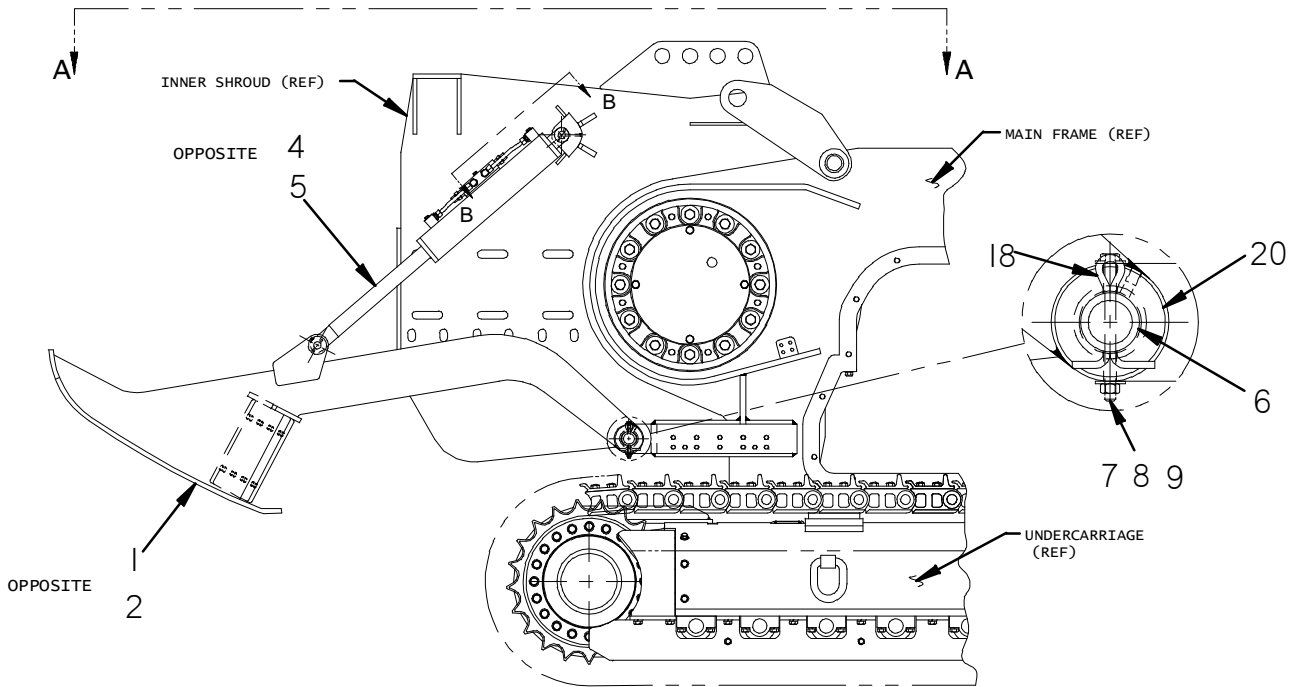
BEGINS WITH S/N CMWHT220J80000012



SOME ITEMS ARE NOT SHOWN FOR CLARITY



SOME ITEMS ARE NOT SHOWN FOR CLARITY



STABILIZER INSTALLATION

HT220

BEGINS WITH S/N CMWHT220J80000012

REF PART NO.	NUMBER	QTY	DESCRIPTION	REMARKS
1.	TS2708-001	1	STABILIZER/DRAG WELDMENT,R/H	
2.	TS2708-002	1	STABILIZER/DRAG WELDMENT,L/H	
3.	TS2708-003	-	DRAG PLATE, STABILIZER	
4.	TST00-6500-278	1	CYL, STABILIZER,R/H	
5.	TST00-6500-279	1	CYL, STABILIZER,L/H	
6.	TS9232-001	2	STABILIZER PIN	
7.	106-108	2	HHCS (3/8-16 UNC X 4-3/4") GD 8	
8.	105-118	4	FLAT WASHER (3/8")	
9.	105-047	2	LOCKNUT (3/8-16 UNC)	
10.	TST01-9216-030	2	PIN, 1"Ø X 3-3/4")	
11.	105-329	4	FLAT WASHER (1")	
12.	TST01-9216-051	2	PIN, 1"Ø X 6-3/8")	
13.	105-357	4	LOCKNUT (5/8-11 UNC)	
14.	105-385	4	LOCK WASHER (5/8")	
15.	105-358	4	HHCS (5/8-11 UNC X 1-1/2") GD 8	

NOT SHOWN:

TST00-6100-114 COMBINATION VALVE

FOOTNOTES:

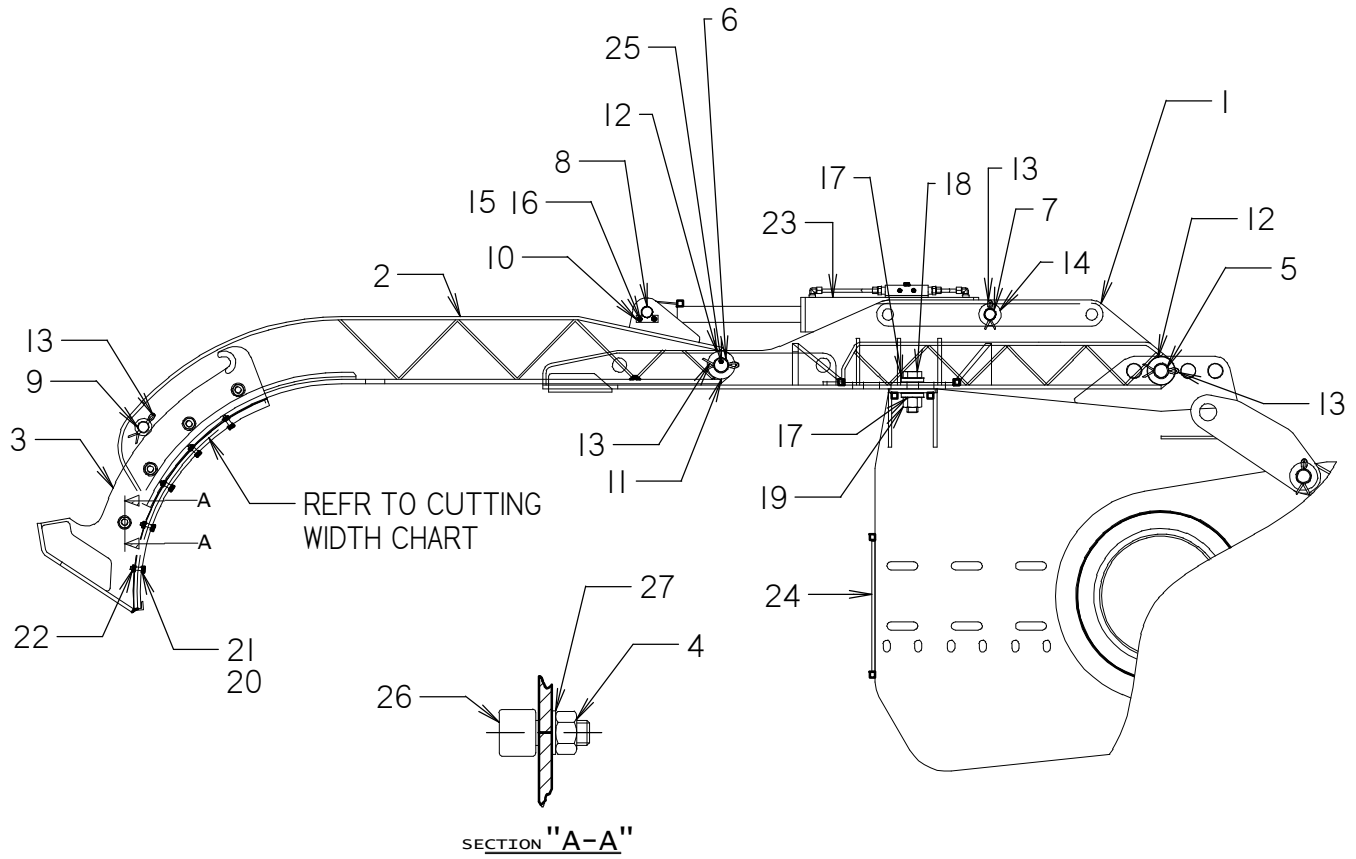
NOTE:

PARTS DISPLAYED FOR REFERENCE ONLY:

- | | |
|---------------------------------------|-------|
| 16. FLAT WASHER (5/8") HARDENED, F436 | (12X) |
| 17. HHCS (5/8-11 UNC X 2-1/4") | (4X) |
| 18. COTTER PIN (1/2" X 4") | (2X) |
| 19. COTTER PIN (3/16" X 2-1/2") | (8X) |
| 20. FLAT WASHER (2") HARDENED, F436 | (2X) |
| 21. FLAT WASHER (1") HARDENED, F436 | (4X) |

TESMEC REF. NO. 285-2708-000

CRUMBSHOE ASSEMBLY HT220



CUT WIDTH	PART No. "A"	
12"	TS83108	140-1076
14"	TS83123	140-1077
16"	TS83109	140-1078
18"	TS83110	140-1079
24"	TS83112	140-1080

CRUMBSHOE ASSEMBLY

HT220

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TS83705	1	CRUMBSHOE SPAR	
2. TS85523	1	CRUMBSHOE MOUNTING BEAM	
3. TS85524	1	CRUMBSHOE	
4. TSU26201425	8	HEX NUT 1-14NF	
5. TS83052	1	PIN D.50 X 294mm LG.	
6. TS83056	1	PIN D.50 X 266mm LG.	
7. TS83054	1	PIN D.40 X 234mm LG.	
8. TS83055	1	PIN D.40 X 131mm LG.	
9. TS83057	1	PIN D.40 X 180mm LG.	
10. TS83053	1	RETAINER	
11. TS83113	2	BUSHING	
12. TS25010054	4	FLAT WASHER D.54 UNI6592	
13. TS25410100	7	COTTER PIN D.10 X 100mm LG.	
14. TS25010043	2	FLAT WASHER D.42 UNI6592	
15. 106-327	2	HHCS M8 X 30 UNI5737 8.8	TS40108030
16. TS25112008	2	LOCKWASHER D.8.4 UNI1751	
17. TS83089	4	CLAMP WASHER	
18. TS42136120	2	HHCS M36 X 120 UNI5737 10.9	
19. TSU26205136	2	HEX LOCK NUT M36 10.9	
20. 105-271	10	HHCS M10 X 40 UNI 5737 8.8	TS40110040
21. 106-390	10	FLAT WASHER D.10.5 UNI6592	TS25010010
22. TS26021010	10	HEX LOCK NUT M10	
23. TS83608	1	CYLINDER	
24. TS82933	-	INSIDE SHROUD	
25. TS3100000	1	FITTING M10 X 1 UNI7663	
26. TST00-3200-003	8	ROLLER	
27. TSU25015025	8	WASHER, FLAT D.1" R80	

NOT SHOWN:

WING PLATE

REFER TO FOOTNOTE 1

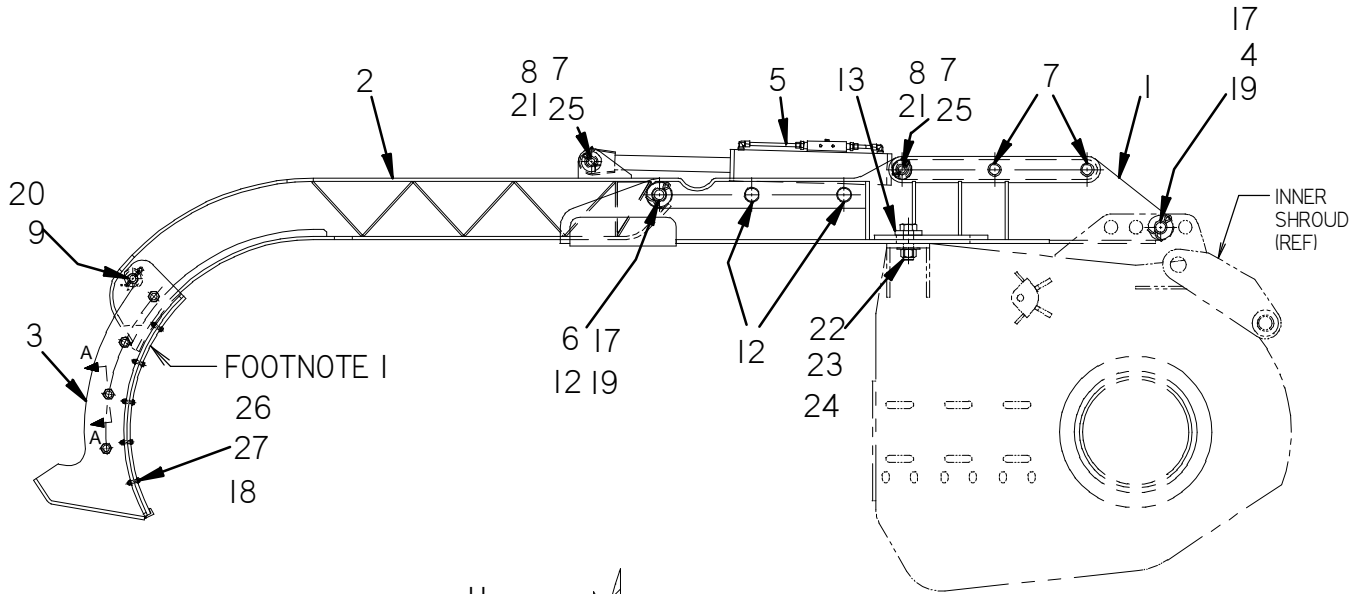
FOOTNOTES:

- FOR WING PLATE CUTTING WIDTH REFER TO CHART ON GRAPHICS PAGE.

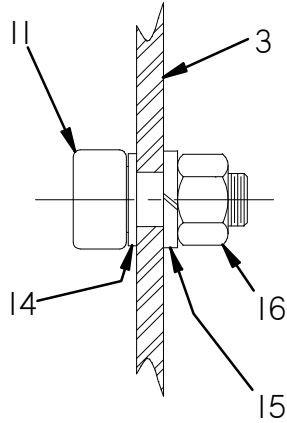
NOTE:

REF 855250

CRUMBSHOE ASSEMBLY, 4'-5' & 6' BOOM
 HT220
 BEGINS WITH S/N CMWHT220J80000012



FOOTNOTE 1



SECTION A-A

- NOTES:
 1. BREAK ALL SHARP EDGES & CORNERS.
 2. ITEM #3 IS TO BE POSITIONED PROPERLY ON ITEM #2 BEFORE ADDING PIN ITEM #9
 3. WING PLATE IS 1" LESS THEN CUT WIDTH.

CUT WIDTH	"A"
12"	140-1076
14"	140-1077
16"	140-1078
18"	140-1079
24"	140-1080

CRUMBSHOE ASSEMBLY, 4'-5' & 6' BOOM

HT220

BEGINS WITH S/N CMWHT220J80000012

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	TS2752-001	1	CRUMBSHOE SPAR WELDMENT	SEE FOOTNOTE 1
2.	TS2752-003	1	MOUNTING BEAM WELMENT	SEE FOOTNOTE 1
3.	TS2752-004	1	CRUMBSHOE WELDMENT	SEE FOOTNOTE 1
4.	TST01-9232-091	1	PIN,Ø2" X 11-3/8"	
5.	TST00-6500-277	1	CRUMBSHOE HYD. CYL.	
6.	TST01-9232-083	1	PIN,Ø2" X 10-3/8"	
7.	TST00-5200-073	8	SPRING BUSH (40mm X 2"OD X 1")	
8.	TS9225-002	1	PIN,Ø40mm X 6-1/4"	
9.	TS9224-001	1	CRUMBSHOE STOP PIN	
10.	TS9225-001	1	PIN,Ø40mm X 9-1/4"	
11.	TST00-3200-003	8	CAMROLL BEARING	
12.	TST00-5200-048	6	SPRING BUSH (2"ID X 2-1/4"X 1")	
13.	TS602-9300-001	2	CLAMP WASHER	
14.	TST04-9320-019	8	FLAT WASHER(1.010"ID X 1.735"OD)	

NOT SHOWN:

FOOTNOTES:

- I. REFER TO CUTTING WIDTH CHART ON GRAPHICS PAGE FOR WING PLATE SELECTION.

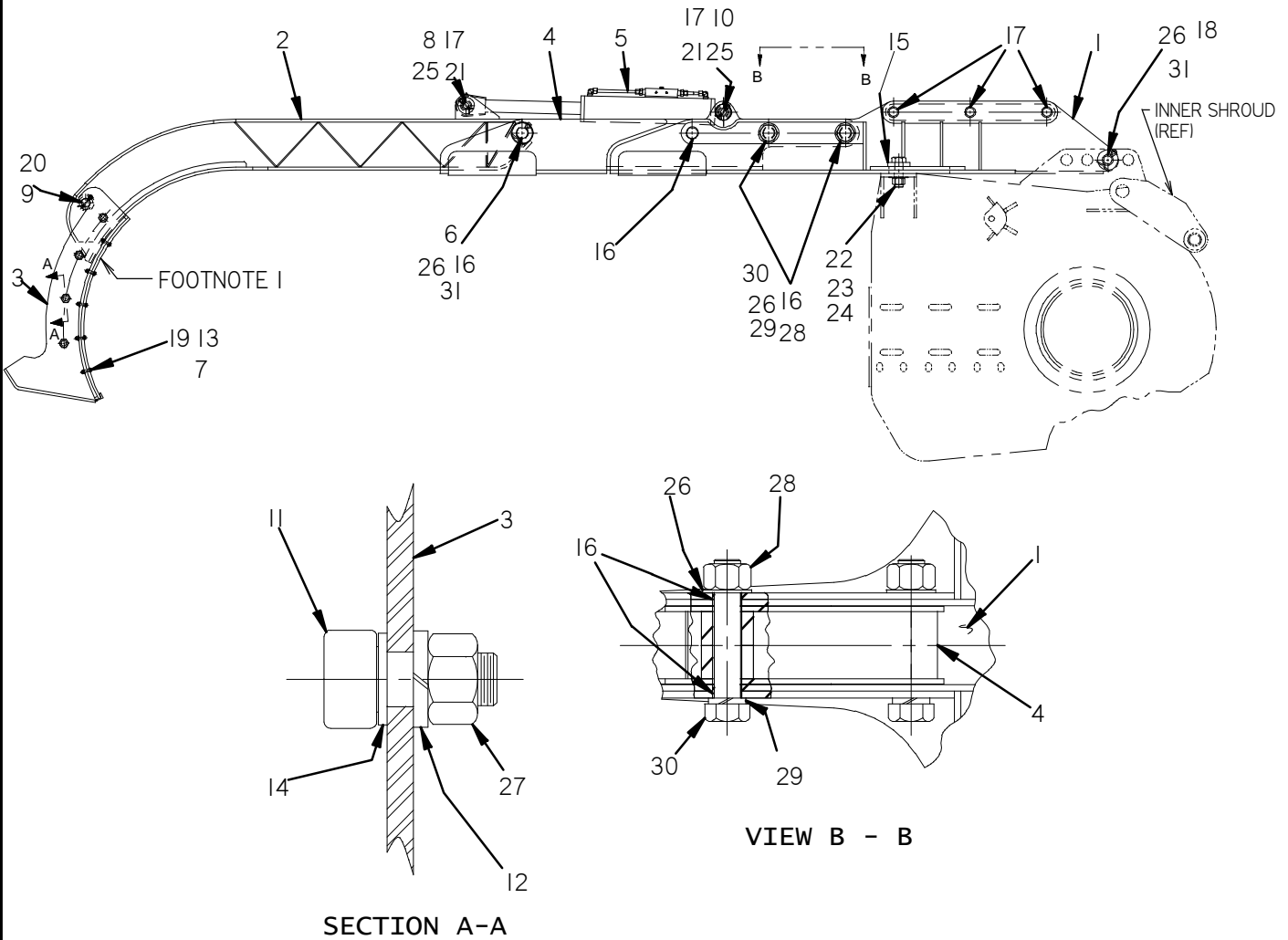
NOTE:

PARTS SHOWN FOR REFER ONLY:

15.	LOCKWASHER	(8X)
16.	HEX NUT (1-14NF)	(8X)
17.	FLAT WASHER (2", HARDENED) F436	(4X)
18.	LOCKNUT (1/2-16 UNC) GR8	(10X)
19.	COTTER PIN (1/2"OD X 4")	(4X)
20.	COTTER PIN (3/8"OD X 4")	(1X)
21.	FLAT WASHER (1-1/2", HARDENED) F436	(4X)
22.	HHCS (1-1/2-6 UNC X 4-1/2") GR8	(2X)
23.	FLAT WASHER (1-1/2")	(2X)
24.	LOCKNUT (1-1/2-6 UNC)	(2X)
25.	COTTER PIN (3/8"OD X 3")	(4X)
26.	HHCS (1/2-16 UNC X 2") GR 8	(10X)
27.	FLAT WASHER (1/2", HARDENED) F436	(20X)

TESMEC REFERENCE: 285-2752-100

CRUMBSHOE ASSEMBLY, 8' BOOM
 HT220
 BEGINS WITH S/N CMWHT220J80000012



- NOTES:
1. BREAK ALL SHARP EDGES & CORNERS.
 2. ITEM #3 IS TO BE POSITIONED PROPERLY ON ITEM #2 BEFORE ADDING PIN ITEM #9
 3. WING PLATE IS 1" LESS THEN CUT WIDTH.

CUT WIDTH	"A"
12"	140-1076
14"	140-1077
16"	140-1078
18"	140-1079

CRUMBSHOE ASSEMBLY, 8' BOOM

HT220

BEGINS WITH S/N CMWHT220J80000012

REF NO.	PART NUMBER	QTY	DESCRIPTION	REMARKS
1.	TS2752-001	1	CRUMBSHOE SPAR WELDMENT	SEE FOOTNOTE 1
2.	TS2752-003	1	MOUNTING BEAM WELMENT	SEE FOOTNOTE 1
3.	TS2752-004	1	CRUMBSHOE WELDMENT	SEE FOOTNOTE 1
4.	TS2752-002	1	SPAR EXTENSION SPRING	
5.	TST00-6500-277	1	CRUMBSHOE HYD. CYL.	
6.	TST01-9232-083	1	PIN, $\varnothing 2''$ X 10-3/8"	
7.	105-047	10	LOCKNUT (3/8-16 UNC) GR8	
8.	TS9225-002	1	PIN, $\varnothing 40\text{mm}$ X 6-1/4"	
9.	TS9224-001	1	CRUMBSHOE STOP PIN	
10.	TS9225-001	1	PIN, $\varnothing 40\text{mm}$ X 9-1/4"	
11.	TST00-3200-003	8	CAMROLL BEARING	
12.	105-374	8	LOCK WASHER (1")	
13.	107-368	20	FLAT WASHER (3/8", HARDENED F436	
14.	TST04-9320-019	8	FLAT WASHER (1.010" ID X 1.735" OD)	
15.	TS602-9300-001	2	CLAMP WASHER	
16.	TST00-5200-048	8	SPRING BUSH (2" ID X 2-1/4" OD X 1"	
17.	TST00-5200-073	10	SPRING BUSH (40mm ID X 2" OD X 1"	
18.	TST01-9232-091	1	PIN, $\varnothing 2''$ X 11-3/8"	
19.	105-286	10	HHCS (3/8-16 UNC X 1-3/4") GR 8	

NOT SHOWN:

FOOTNOTES:

- I. REFER TO CUTTING WIDTH CHART ON GRAPHICS PAGE FOR WING PLATE SELECTION.

NOTE:

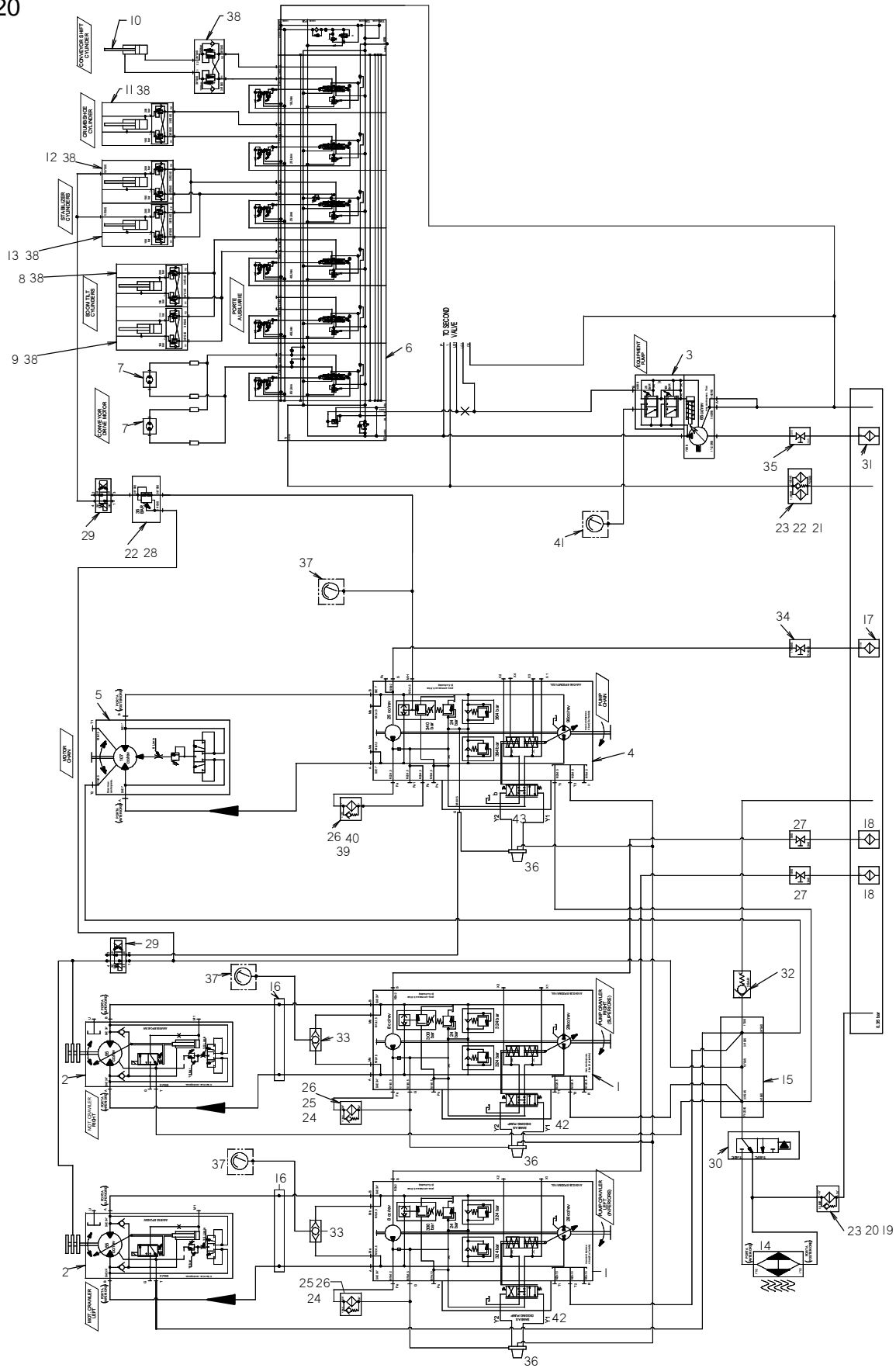
PARTS SHOWN FOR REFER ONLY:

20.	COTTER PIN (3/8" OD X 4")	(1X)
21.	FLAT WASHER (1-1/2", HARDENED) F436	(4X)
22.	HHCS (1-1/2-6 UNC X 4-1/2") GR8	(2X)
23.	FLAT WASHER (1-1/2")	(2X)
24.	LOCKNUT (1-1/2-6 UNC)	(2X)
25.	COTTER PIN (3/8" OD X 3")	(4X)
26.	FLAT WASHER (2", HARDENED) F436	(4X)
27.	HEX NUT (1-1/4 NF)	(8X)
28.	HEX NUT (2-4-1/2 UNC)	(2X)
29.	LOCK WASHER (2")	(2X)
30.	HHCS (2-4-1/2 UNC X 1")	(2X)
31.	COTTER PIN (1/2" OD X 4")	(4X)

TESMEC REFERENCE: 285-2752-200

HYDRAULICS

HYDRAULIC SCHEMATIC HT220



HYDRAULIC SCHEMATIC

HT220

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TS13505574		- PUMP, CRAWLER WITH HD1 CONTROL	
2. TS13504205		- MOTOR CRAWLER	
3. TST00-6000-014		- PUMP, PRESSURE/FLOW COMPENSATED	
4. TS13505487		- PUMP, DIG CHAIN, WITH HD1 CONT.	
5. TS13504166	1	MOTOR, DIGGIN CHAIN	
6. TS13100036	1	VALVE, MULTI-SEC., SOL. CONTROL	
7. TS13100084		- MOTOR, CONVEYOR	
8. TS83541		- CYLINDER, BOOM TILT R/H	
9. TS83542		- CYLINDER, BOOM TILT L/H	
10. TS83540		- CYLINDER, CONVEYOR SHIFT	
11. TS83608		- CYLINDER, CRUMBSHOE	
12. TS87130		- CYLINDER, STABLIIZER R/H	
13. TS87131		- CYLINDER, STABLIIZER L/H	
14. TS88409		- HEAT EXCHANGER	
15. TS83248		- RETURN MANIFOLD	
16. TS83256		- CRAWLER MANIFOLD	
17. TS03300042	1	SUCTION STRAINER	
18. TS36401150	2	SUCTION STRAINER	
19. TS36400923	1	FILTER HEAD	
20. TS36400924		- FILTER ELE. 36400923 0330049	
21. TS03300049	1	FILTER HEAD	
22. TS07300142	1	PRESS. REDUCING VAL. CARTRIDGE	
23. TS36400925	2	PRESSURE SWITCH	
24. TS36400920	2	REMOTE FILTER HEAD	
25. TST00-6600-118		- FILTER ELEMENT 36400920	
26. TS36400922	3	PRESSURE SWITCH	
27. TS01600050		- BALL VALVE 1"	
28. TS07300148	1	PRESS. REDUCING VALVE BODY	
29. TS07300386	2	2-POSITION 4 WAY, SOL. VAL.	
30. TST00-6100-103	1	THERMOSTATIC CONTROL VALVE	
31. TS03300041	1	SUCTION STRAINER	
32. TS07300326	1	CHECK VALVE, 2 BAR	
33. TS07800009	2	SHUTTLE VALVE	
34. TS01600037		- BALL VALVE 1 1/4"	
35. TS01600057		- BALL VALVE 2"	
36. TST00-8500-097		- ELECTRIC COIL ASSEMBLY	
37. TST00-6300-019		- 7500 PSI PRESSURE GAUGE	
38. TS07800016	1	COUNTERBALANCE VALVE	
39. TS36401040	1	REMOTE FILTER HEAD	
40. TST00-6600-116		- FILTER ELEMENT 36401040	
41. TST00-6300-008		- 3000 PSI PRESSURE GAUGE	
42. TST00-6099-017		- HYD CONTROL VALVE	
43. TST00-6099-018		- HYD CONTROL VALVE	

NOT SHOWN:

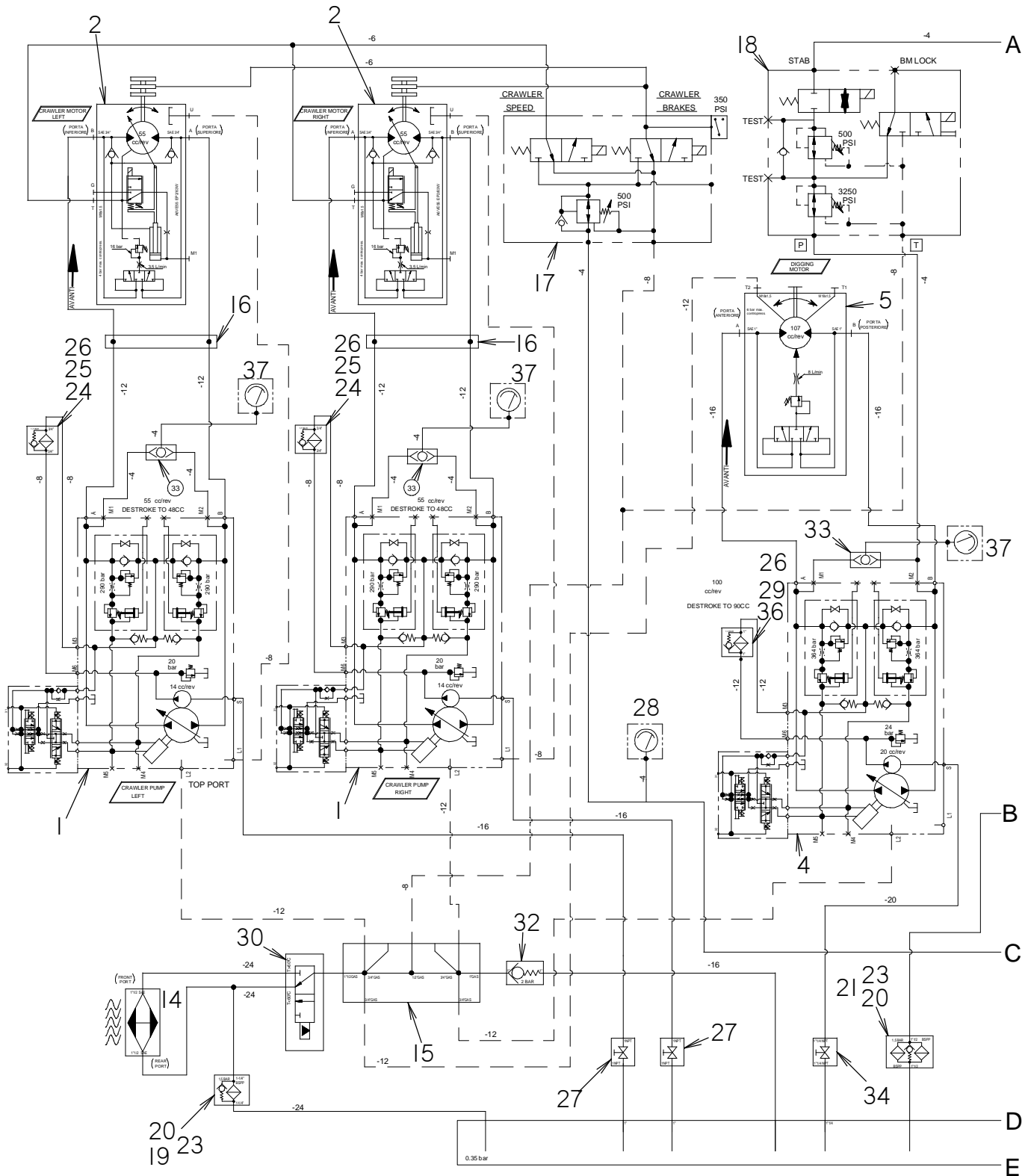
FOOTNOTES:

NOTE:

REF 285-7000-000

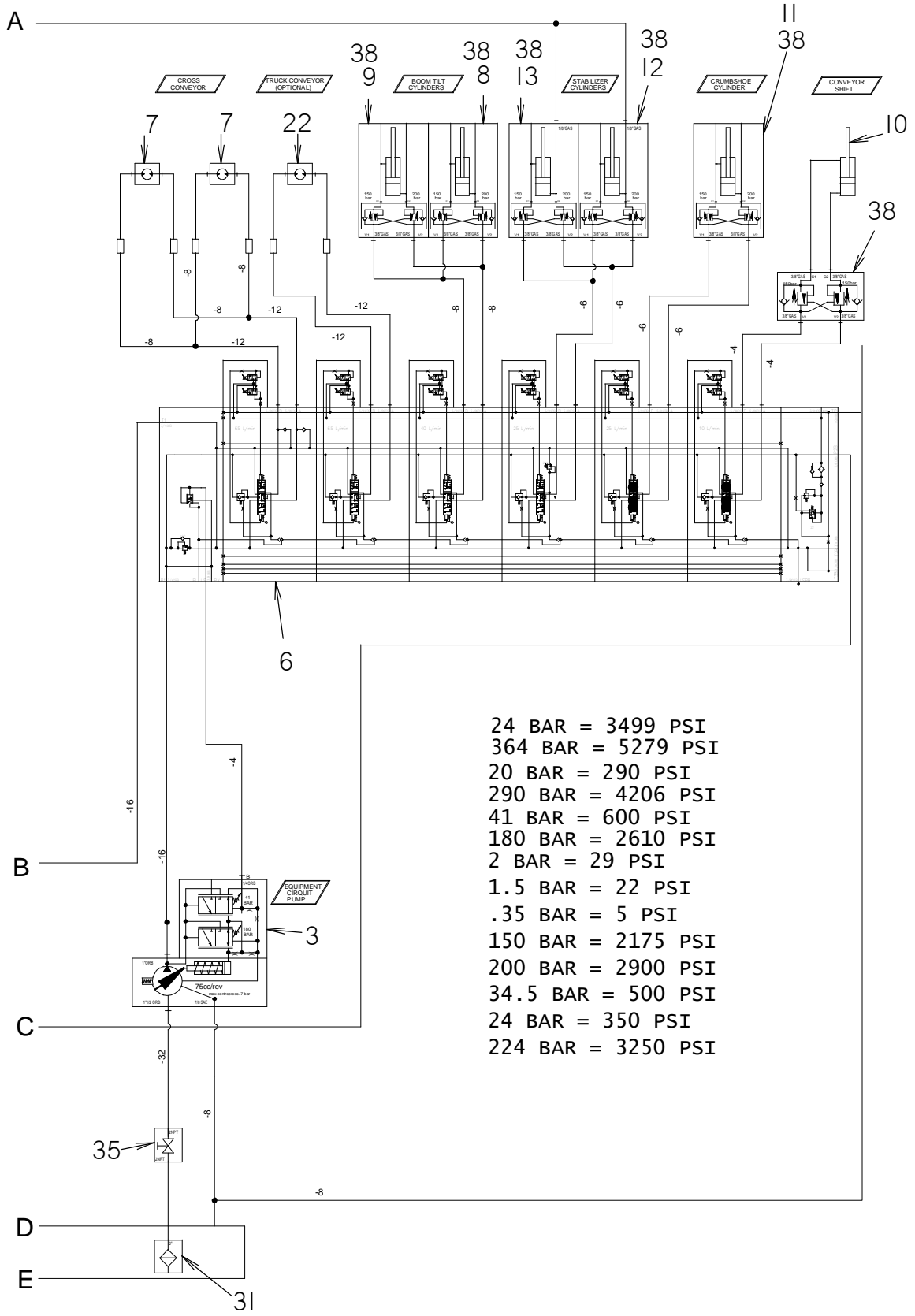
HYDRAULIC SCHMATIC

HT220
BEGINS WITH S/N CMWHT220J80000012



HYDRAULIC SCHMETIC

HT220
 BEGINS WITH S/N CMWHT220J80000012



- 24 BAR = 3499 PSI
- 364 BAR = 5279 PSI
- 20 BAR = 290 PSI
- 290 BAR = 4206 PSI
- 41 BAR = 600 PSI
- 180 BAR = 2610 PSI
- 2 BAR = 29 PSI
- 1.5 BAR = 22 PSI
- .35 BAR = 5 PSI
- 150 BAR = 2175 PSI
- 200 BAR = 2900 PSI
- 34.5 BAR = 500 PSI
- 24 BAR = 350 PSI
- 224 BAR = 3250 PSI

HYDRAULIC SCHMETIC

HT220

BEGINS WITH S/N CMWHT220J80000012

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1.		TST00-6000-080 - PUMP,VARIABLE DISPLACEMENT 48CC	
2.		TST00-6000-518 - MOTOR,VARIABLE DISPLACEMENT 55CC	
3.		TST00-6000-078 - EQUIPMENT CIRCUIT PUMP	
4.		TST00-6000-079 - PUMP,VARIABLE DISPLACEMENT 90CC	
5.		TST00-6000-586 - MOTOR, FIXED DISPLACEMENT 107CC	
6.		TST00-6100-248 - 6-SECTION LOAD SENSE VALVE	
7.		TST00-6000-587 - MOTOR, CONVEYOR DRIVE	
8.		TST00-6500-275 - CYL.,BOOM TILT, L/H	
9.		TST00-6500-276 - CYL.,BOOM TILT, R/H	
10.		TST00-6500-274 - CYL.,CONVEYOR SHIFT	
11.		TST00-6500-277 - CYL.,CRUMBSHOE	
12.		TST00-6500-278 - CYL.,STABILIZER, R/H	
13.		TST00-6500-279 - CYL.,STABILIZER, L/H	
14.		TST00-4500-381 - COOLING UNIT ASSEMBLY	
15.		TS7700-002 - MANIFOLD, RETURN	
16.		TS7700-003 - MANIFOLD, CRAWLER	
17.		TST00-6100-112A - COMBINATION BLOCK VAVLE	
18.		TST00-6100-114 - COMBINATION VALVE	
19.		TST00-6600-137 - FILTER HEAD, SINGLE	
20.		500-1782 - FILTER ELEMENT, SPIN-ON	TST00-6600-031
21.		TST00-6600-136 - FILTER HEAD, DOUBLE	
22.		TST00-6000-588 - MOTOR, TRUCK CONVEYOR DRIVE	
23.		TST00-6600-138 - SWITCH, FILTER HEAD	
24.		TST00-6600-133 - FILTER HEAD, SINGLE	
25.		500-1784 - FILTER ELEMENT, SPIN-ON	TST00-6600-118
26.		TST00-6600-135 - SWITCH, FILTER HEAD	
27.		TST00-6100-515 - BALL VALVE, 1-NPT	
28.		TST00-6300-020 - PRESSURE GAUGE,Ø2-1/2",4000 PSI	
29.		500-1783 - FILTER ELEMENT, SPIN-ON	TST00-6600-116
30.		TST00-6100-103 - THERMOSTATIC CONTROL VALVE	
31.		TST00-6600-139 - SUCTION STRAINER, 2" BSPP	
32.		TST00-6200-520 - CHECK VAVLE, 25 PSI	
33.		TST00-6200-503 - SHUTTLE VALVE	
34.		TST00-6100-520 - BALL VALVE, 1-1/4-NPT	
35.		TST00-6100-512 - BALL VALVE, 2-NPT	
36.		TST00-6600-134 - FILTER HEAD, SINGLE	
37.		TST00-6300-019 - PRESSURE GAUGE,Ø2-1/2", 7500 PSI	
38.		TST00-6200-546 - COUNTERBALANCE VALVE,CYL MOUNTED	

NOT SHOWN:

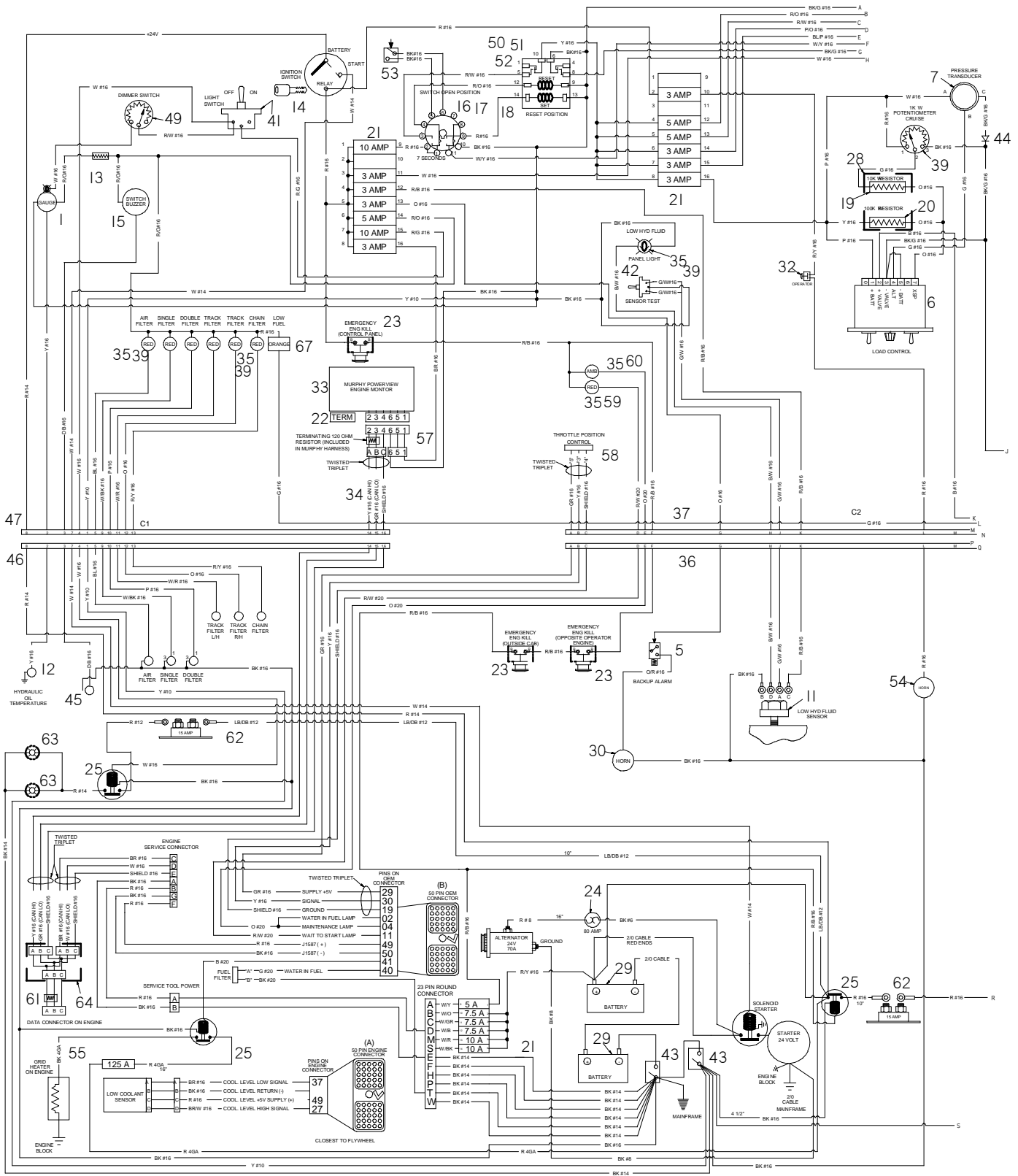
FOOTNOTES:

NOTE:

TESMEC REF: 285-7000-100

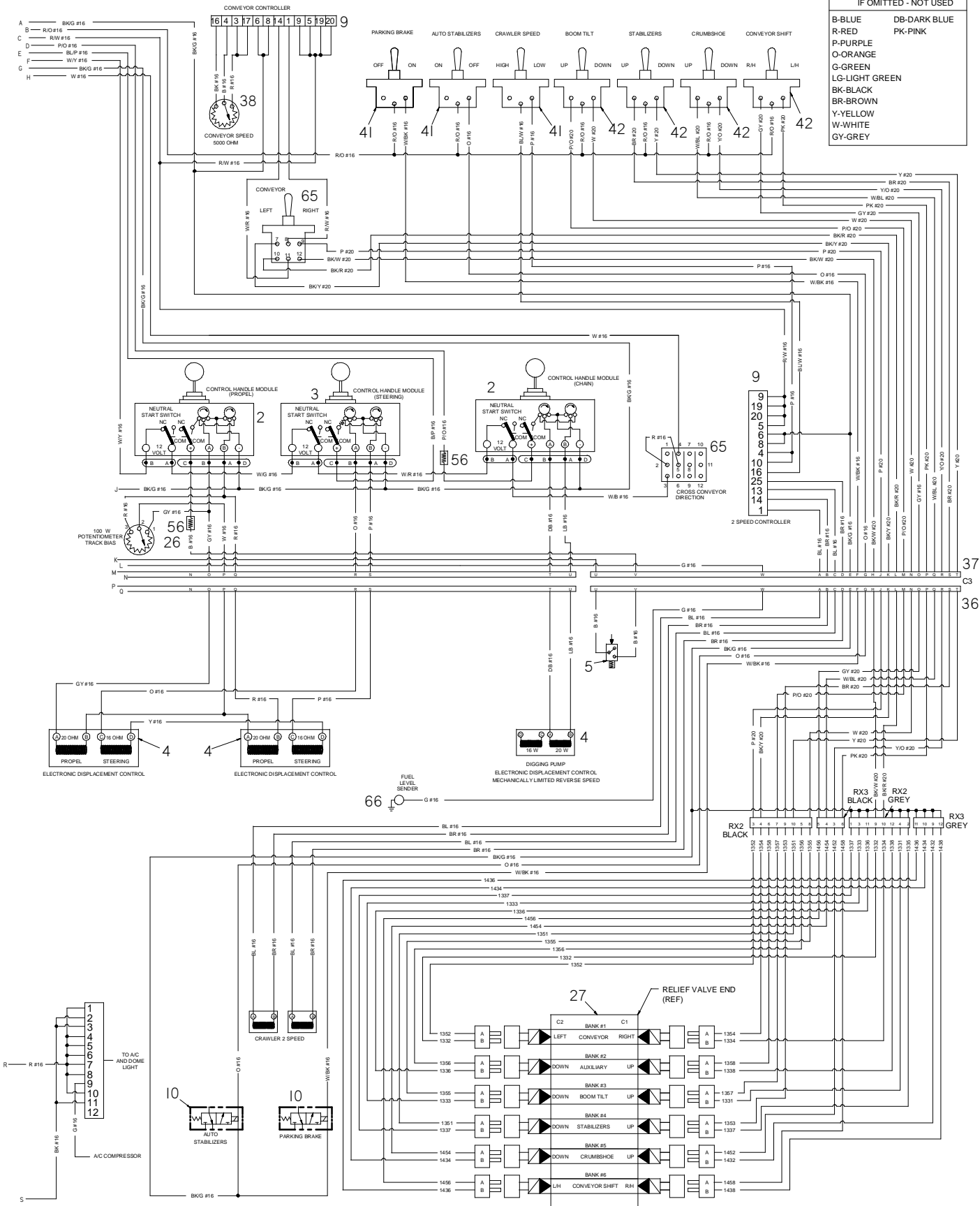
ELECTRICAL

ELECTRICAL SCHEMATIC HT220



ELECTRICAL SCHEMATIC HT220

LEGEND		
WIRE COLOR	B/Y #16	WIRE GA. SIZE
STRIPE COLOR		
IF OMITTED - NOT USED		
B-BLUE	DB-DARK BLUE	
R-RED	PK-PINK	
P-PURPLE		
O-ORANGE		
G-GREEN		
LG-LIGHT GREEN		
BK-BLACK		
BR-BROWN		
Y-YELLOW		
W-WHITE		
GY-GREY		



ELECTRICAL SCHEMATIC

HT220

REF PART NO. NUMBER QTY DESCRIPTION	REMARKS
1. TST00-8600-051 1 HYD. OIL TEMP GA. 100°-240° F	
2. TST00-8500-095 - CONTROL HANDLE	FRICITION DETENT & SWITCH
3. TST00-8500-094 - CONTROL HANDLE	SPRING CENTER & SWITCH
4. TST00-8500-097 - ELEC. COIL ASM, DUAL KP	
5. TST00-8600-114 - PRESSURE SWITCH	
6. TST00-8500-096 - LOAD CONTROL	
7. TST00-8500-025 - PRESSURE TRANSDUCER	
8. TST00-8500-098 - CONVEYOR CONTROLLER	
9. TST00-8500-099 - 2-SPEED CONTROLLER	
10. TS07300386 - COMBO. BLOCK VALVE	
11. TS09102741 - FLUID LEVEL SENSOR	
12. TST00-8600-064 - TEMP SENDER 100°-240° F	
13. TST00-8600-062 - HYD. GAUGE RESISTOR	
14. TST00-4500-355 - IGNITION SWITCH	
15. TST00-8600-076 - HORN, 12V 80dB.	
16. TST00-8400-152 - TIMER RELAY-24V	
17. TST00-8400-100 - TIMER RELAY BASE	
18. TST00-8400-101 - TIMER RETAINER	
19. TST00-8400-008 1 RESISTOR, 10K W	
20. TST00-8400-009 1 RESISTOR, 100K W	
21. TST00-8400-105 - FUSE PANEL	
22. TST00-8600-157 - POWerview TERMINATION RESISTOR	
23. TST00-8400-071 - SWITCH, EMER. STOP, PUSH-TO-KILL	
24. TST00-8400-123 - CIRCUIT PROTECTOR, 80 AMP	
25. TST00-8400-043 - SOLENOID RELAY	
26. TS365-2210-006 - POTENTIOMETER ASSY.	
27. TS13100036 - EQUIP. CIRCUIT CONTROL VALVE.	8-BANK
28. TS200-8503-004 - RESISTOR MOUNTING BRKT.	
29. TST00-4700-005 - BATTERY, 12 VOLT	
30. TS09102196 - HORN, BACKUP	
31. TST00-6100-112 - COMBO. BLOCK VALVE	
32. TST00-8400-059 - PUSH BUTTON SWITCH	
33. TST00-8600-157 - POWER VIEW MODULE	
34. TST00-8600-159 - POWER VIEW HARNESS	
35. TST00-8400-056 - LIGHT HOLDER	

NOT SHOWN:

FOOTNOTES:

NOTE:
REF:95296 0

ELECTRICAL SCHEMATIC

HT220

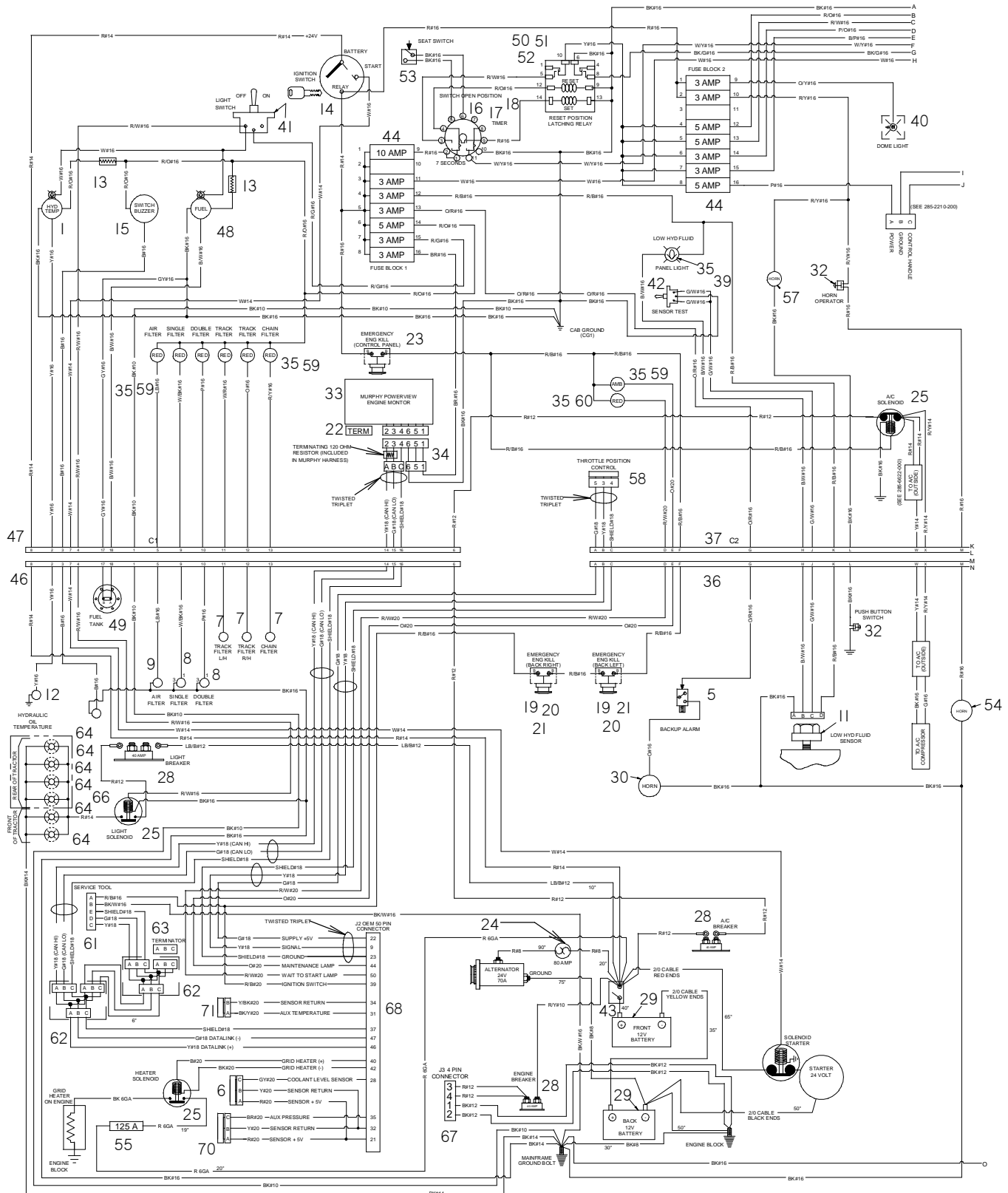
REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
36.		TST00-8400-147 - CONNECTOR, 24 PIN CAP	
37.		TST00-8400-148 - CONNECTOR, 24 PIN PLUG	
38.		TST00-8400-032 - 1000 OHM POTENTIOMETER	
39.		TS365-2210-004 - 2 TURN POT ASSEMBLY	
40.		TST00-2200-012 - DOME LIGHT SWITCH & FIXTURE	
41.		TST00-8400-063 - SWITCH,SEALED, SPDT, ON-OFF	
42.		TST00-8400-064 - SWITCH,SEALED, SPDT, MOMENTARY	
43.		TS09104160 - BATTERY DISCONNECT SWITCH	
44.		TST00-8400-065 - DIODE, 6 AMP, AXIAL CONFIG.	
45.		TST00-8600-077 - SWITCH, PRESSURE, NC	
46.		TST00-8400-149 - CONNECTOR, 18 PIN CAP	
47.		TST00-8400-150 - CONNECTOR, 18 PIN PLUG	
48.		TST00-8640-002 - ACC. RECEPTICLE-12V	
49.		TST00-8400-091 - DIMMER SWITCH, PANEL LIGHTS	
50.		TST00-8400-151 - RELAY, LATCHING	
51.		TST00-8400-096 - RELAY BASE	
52.		TST00-8400-097 - HOLD DOWN, RELAY BASE	
53.		TST00-1400-011 - SEAT, OPERATOR CAB	
54.		TS09102054 - HORN	
55.		TST00-8400-117 - FUSE, 125 AMP	
56.		TST00-8400-168 - RESISTOR, 60 OHM	
57.		TST00-8600-159 - POWerview HARNESS	
58.		TST00-8500-082 - ENG. THROTTLE CONTROLLER	
59.		TST00-8400-125 - LENS, RED DOME	
60.		TST00-8400-119 - LENS, YELLOW DOME	
61.		TST00-8400-167 - RESISTOR, 120 OHM	
62.		TST00-8400-107 - 15A BREAKER	
63.		TS09102240 - 24V, 60W, SEALED BEAM #4578	
64.		TST00-8400-162 - TEE, CONNECTOR	
65.		TST00-8400-111 - SWITCH, QPTT, CENTER OFF	
66.		TS09102052 - FUEL LEVEL SENDER	
67.		TS09102134 - LOW FUEL LAMP	

NOT SHOWN:

FOOTNOTES:

NOTE:
REF:95296 0

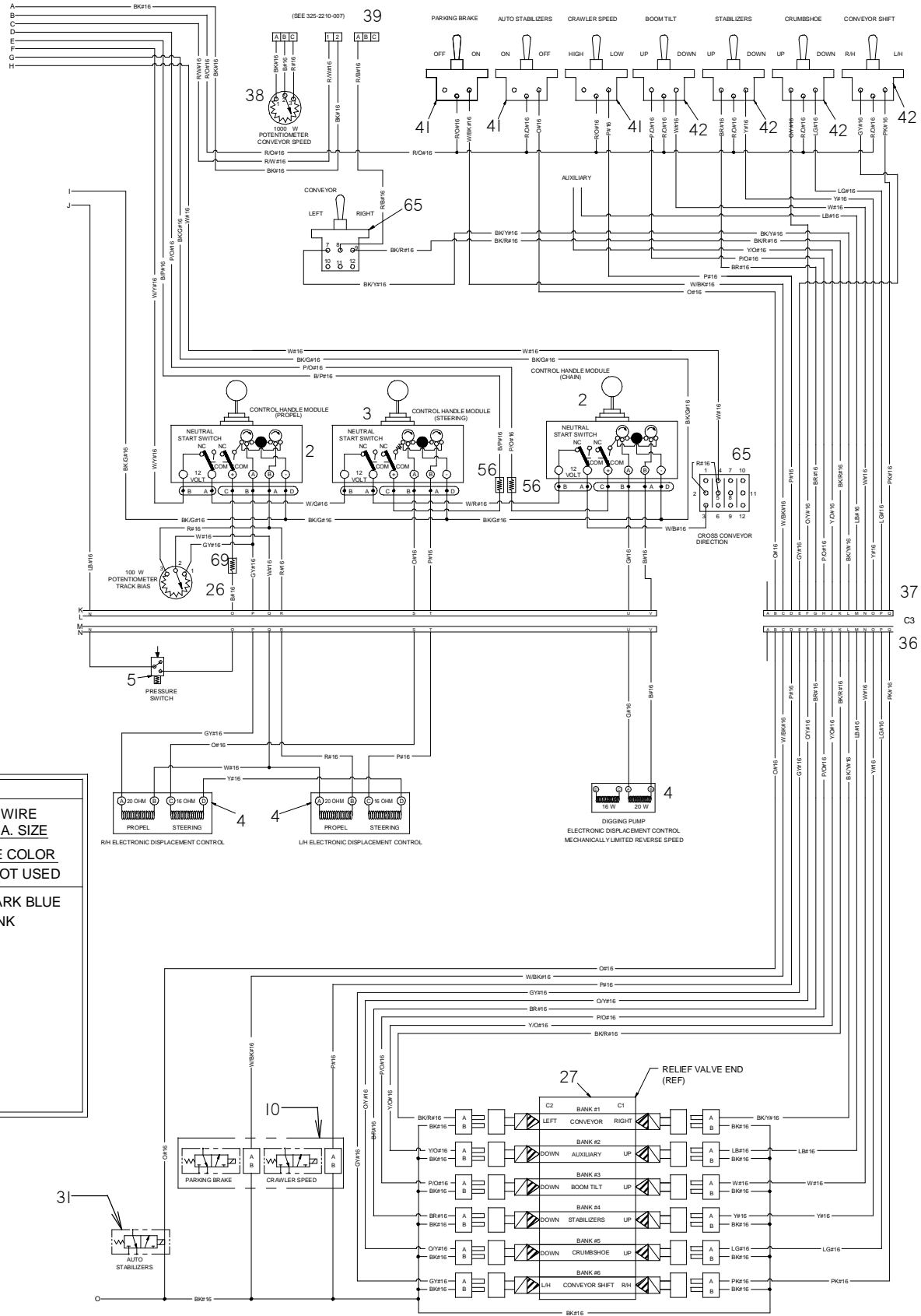
ELECTRICAL SCHEMATIC, CUMMINGS HT220 BEGINS WITH S/N CMWHT220J8000012



ELECTRICAL SCHEMATIC, CUMMINGS

HT220

BEGINS WITH S/N CMWHT220J8000012



LEGEND

WIRE COLOR / B/Y #16 WIRE GA. SIZE / STRIPE COLOR

IF OMITTED - NOT USED

B-BLUE	DB-DARK BLUE
R-RED	PK-PINK
P-PURPLE	
O-ORANGE	
G-GREEN	
LG-LIGHT GREEN	
BK-BLACK	
BR-BROWN	
Y-YELLOW	
W-WHITE	
GY-GREY	

ELECTRICAL SCHEMATIC, CUMMINGS HT220

BEGINS WITH S/N CMWHT220J80000012

REF PART NO.	QTY	DESCRIPTION	REMARKS
1.		TST00-8600-051 - HYD. OIL TEMP GA. 100°-240°F	
2.		TST00-8500-095 - CONTROL HANDLE	FRICTION DETENT & SWITCH
3.		TST00-8500-094 - CONTROL HANDLE	SPRING CENTER & SWITCH
4.		TST00-8500-097 - ELEC. COIL ASM'Y, DUAL, KP	
5.		TST00-8600-114 - PRESSURE SWITCH	
6.		TST00-8600-183 - LOW COOLANT SENDER	
7.		TST00-6600-135 - PRESS. SWITCH, FILTER HEAD	
8.		TST00-6600-138 - PRESS. SWITCH, FILTER HEAD	
9.		TST00-8600-169 - PRESS. SWITCH, AIR FILTER	
10.		TST00-6100-117 - COMBO BLOCK VALVE	
11.		TST00-8600-087 - LOW HYD. FLUID LEVEL SENSOR	
12.		TST00-8600-064 - TEMP SENDER 100°-240°F	
13.		TST00-8600-062 - 24V GAUGE RESISTOR	
14.		TST00-4500-355 - IGNITION SWITCH	
15.		TST00-8600-076 - SWITCH BUZZER HORN, 12V, 80dB	
16.		TST00-8400-152 - TIMER RELAY-24V	
17.		TST00-8400-100 - TIMER RELAY BASE	
18.		TST00-8400-101 - TIMER RETAINER	
19.		TST00-8400-184 - EMERGENCY STOP ENCLOSURE	
20.		TST00-8400-185 - EMERGENCY ENG KILL SWITCH	
21.		TST00-8400-186 - EMERGENCY ENG KILL BLOCK	
22.		TST00-8600-158 - POWERVIEW TERMINATION RESISTOR	
23.		TST00-8400-071 - SWITCH, EMERGENCY STOP	PUSH TO KILL
24.		TST00-8400-123 - CIRCUIT PROTECTOR, 80 AMP	
25.		TST00-8400-043 - SOLENOID RELAY	
26.		TS365-2210-006 - POTENTIOMETER TRACK BIAS, 100W	
27.		TST00-6100-248 - 6-SECTION LOAD SENSE VALVE	
28.		TST00-8400-080 - 40 AMP BREAKER	
29.		TST00-4700-005 - BATTERY, 12 VOLT	
30.		TST00-8600-079 - BACKUP HORN, 12V, 107dB	
31.		TST00-6100-118 - COMBO BLOCK VALVE	
32.		TST00-8400-059 - PUSH BUTTON SWITCH	
33.		TST00-8600-157 - POWERVIEW MODULE	
34.		TST00-8600-159 - POWERVIEW HARNESS	
35.		TST00-8400-056 - LIGHT HOLDER	

NOT SHOWN:

FOOTNOTES:

NOTE:

REF. 285-2210-100

ELECTRICAL SCHEMATIC, CUMMINGS HT220

BEGINS WITH S/N CMWHT220J80000012

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
36. TST00-2205-005	-	DEUTSCH CONN. 23 SLOT MALE	
37. TST00-2205-006	-	DEUTSCH CONN. 23 SLOT FEMALE	
38. TS400-2210-010	-	POTENTIOMETER, CONVEYOR SPEED	CONVEYOR SPEED, 1 TURN, 1KW
39. TST00-8500-105	-	2 CONVEYOR BOX	WITH SOFTWARE
40. TST00-8500-012	-	DOME LIGHT SWITCH & FIXTURE	
41. TST00-8400-063	-	SWITCH, SEALED, SPDT, ON-OFF	
42. TST00-8400-064	-	SWITCH, SEALED, SPDT, MOMENTARY	
43. TST00-8400-062	-	BATTERY DISCONNECT SWITCH	
44. TST00-8400-105	-	FUSE PANEL	
45. TST00-8600-077	-	SWITCH BUZZER, PRESSURE, NC	
46. TST00-2205-003	-	DEUTSCH CONNECTOR, 18 SLOT MALE	
47. TST00-2205-004	-	DEUTSCH CONNECTOR, 18 SLOT FEMALE	
48. TST00-8600-155	-	FUEL GAUGE	
49. TST00-8600-175	-	FUEL LEVEL SENDER	
50. TST00-8400-151	-	RELAY, LATCHING	
51. TST00-8400-096	-	RELAY BASE	
52. TST00-8400-094	-	HOLD DOWN, RELAY BASE	
53. TST00-1400-011	-	SEAT, OPERATOR CAB	
54. TST00-8400-098	-	HORN, 12V, 132dB, CONSTANT TONE	
55. TST00-8400-117	-	FUSE, 125 AMP	
56. TST00-8400-168	-	RESISTOR, 60 OHM	
57. TST00-8600-086	-	PANEL HORN, 12V, 97dB	
58. TST00-8500-082	-	ENG. THROTTLE CONTROLLER	
59. TST00-8400-125	-	LENS, RED DOME	
60. TST00-8400-119	-	LENS, YELLOW DOME	
61. TST00-2205-024	-	DEUTSCH CONNECTOR, 9 SLOT FEMALE	
62. TST00-2205-025	-	DEUTSCH CONNECOTR, TEE	
63. TST00-2205-093	-	DEUTSCH TERMINATING RESISTOR	3-SLOT MALE
64. TST00-2200-023	-	SEAL BEAM, 24V, 55W	
65. TST00-8400-111	-	SWITCH, QPTT, CENTER OFF	
66. TST00-2200-014	-	LIGHT HOUSING, 6"	
67. TST00-2205-090	-	DEUTSCH CONNECTOR, 4 SLOT M, 12 GA.	
68. TST00-2205-082	-	DEUTSCH CONNECTOR, 50 SLOT M, PLUS 1	
69. TST00-8400-209	-	RESISTOR, 100 OHM	
70. TST00-8600-109	-	AUXILIARY PRESSURE SENSOR	
71. TST00-8600-110	-	AUXILIARY TEMP. SWITCH	

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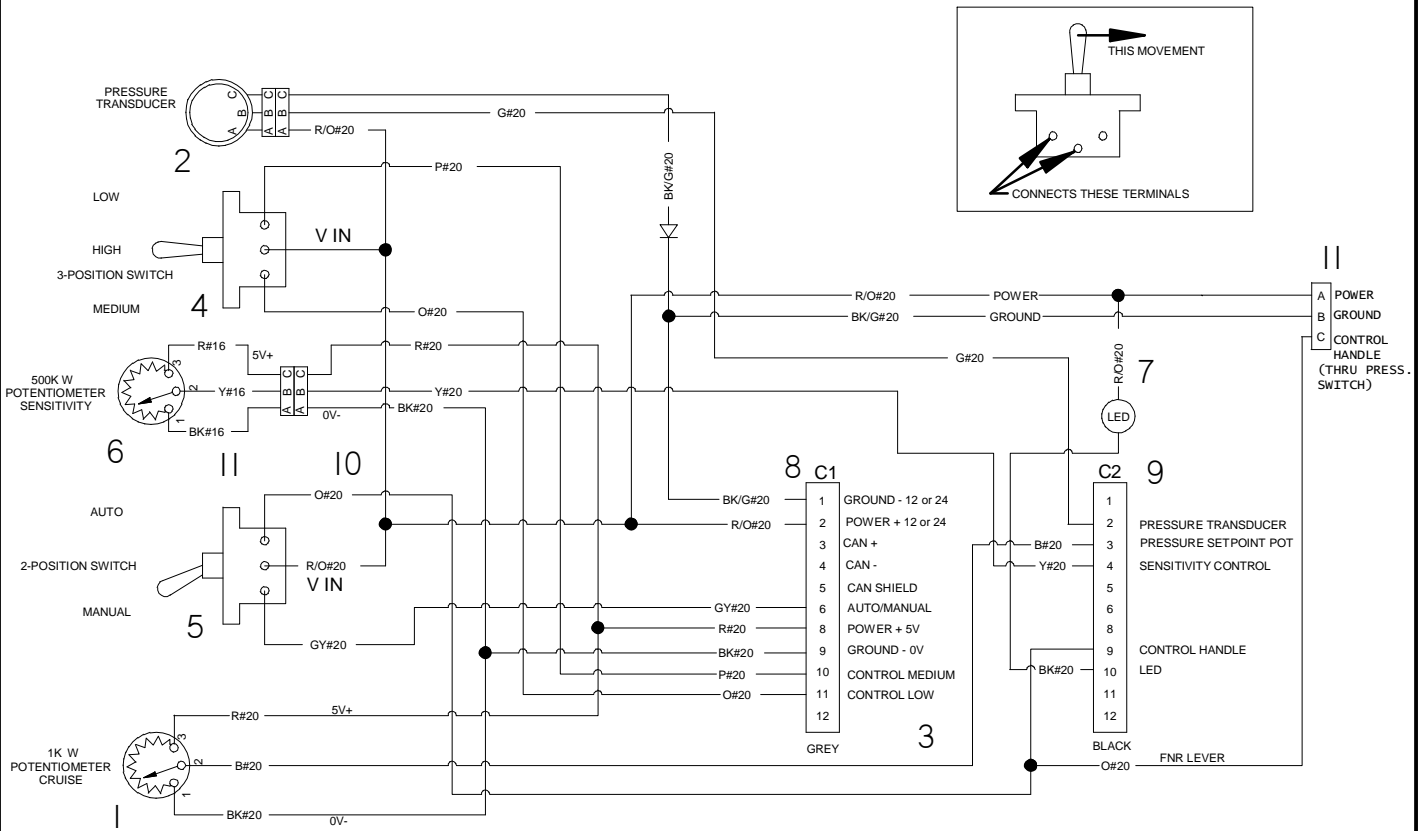
FOOTNOTES:

NOTE:

DIGITAL LOAD CONTROL SCHEMATIC

HT220

BEGINS WITH S/N CMWHT220J80000012



LEGEND	
WIRE COLOR	B/Y #16 WIRE GA. SIZE
STRIPE COLOR	
IF OMITTED - NOT USED	
B-BLUE	DB-DARK BLUE
R-RED	PK-PINK
P-PURPLE	
O-ORANGE	
G-GREEN	
LG-LIGHT GREEN	
BK-BLACK	
BR-BROWN	
Y-YELLOW	
W-WHITE	
GY-GREY	

DIGITAL LOAD CONTROL SCHEMATIC

HT220

BEGINS WITH S/N CMWHT220J80000012

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1. TS365-2210-004	-	3 TURN POT ASSEMBLY	
2. TST00-8500-025	-	PRESSURE TRANSDUCER	
3. TST00-8500-103	-	25 PIN CONTROLLER	
4. TST00-8400-113	-	SWITCH, 3 POSITION, SEALED	
5. TST00-8400-073	-	SWITCH, 2 POSITION, SEALED	
6. TS2210-201	-	POTENTIOMETER, 500K OHM	
7. TST00-8400-199	-	LED, YELLOW, 24V	
8. TST00-2205-097	-	CONNECTOR, 12 PIN MALE, GREY	
9. TST00-2205-098	-	CONNECTOR, 12 PIN MALE, BLK	
10. TST00-2205-036	-	CONNECTOR, 3 PIN MALE	
11. TST00-2205-037	-	CONNECTOR, 3 PIN FEMALE	

NOT SHOWN:

FOOTNOTES:

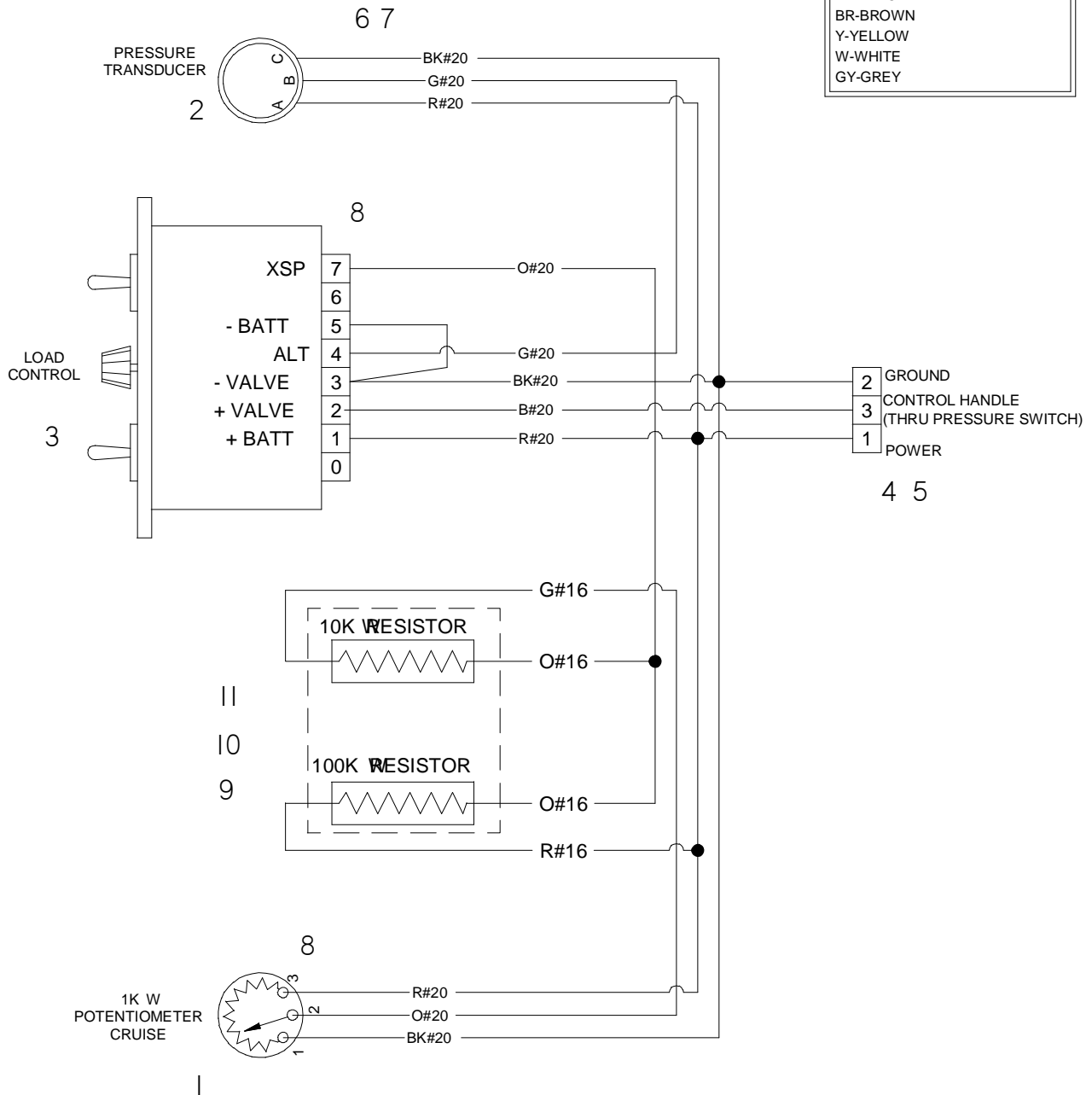
NOTE:

REF. 285-2210-200

ORIGINAL LOAD CONTROL SCHEMATIC

HT220
 BEGINS WITH S/N CMWHT220J80000012

LEGEND		
WIRE COLOR	B/Y #16	WIRE GA. SIZE
STRIPE COLOR		
IF OMITTED - NOT USED		
B-BLUE		DB-DARK BLUE
R-RED		PK-PINK
P-PURPLE		
O-ORANGE		
G-GREEN		
LG-LIGHT GREEN		
BK-BLACK		
BR-BROWN		
Y-YELLOW		
W-WHITE		
GY-GREY		



ORIGINAL LOAD CONTROL SCHEMATIC

HT220

BEGINS WITH S/N CMWHT220J80000012

REF PART NO.	NUMBER	QTY	DESCRIPTION	REMARKS
1.	TS365-2210-004	-	3 TURN POT ASSEMBLY	
2.	TST00-8500-025	-	PRESSURE TRANSDUCER	
3.	TST00-8500-023	-	LOAD CONTROL	
4.	TST00-2205-010	-	3 SLOT GREY DEUTSCH FEMALE	
5.	TST00-2205-027	-	DEUTSCH 16-18 GA. PINS	
6.	TST00-2205-049	-	3 SLOT VOLT. CONNECTOR FEMALE	
7.	TST00-2205-051	-	VOLTAGE CONNECTOR PINS	
8.	TST00-2205-059	-	1/4" STUD, BLU 14-16 GA. FORK	
9.	TST00-8400-008	-	RESISTOR, 10 KW	
10.	TST00-8400-009	-	RESISTOR, 100 KW	
11.	TS200-8503-004	-	RESISTOR MOUNTING BRKT.	

NOT SHOWN:

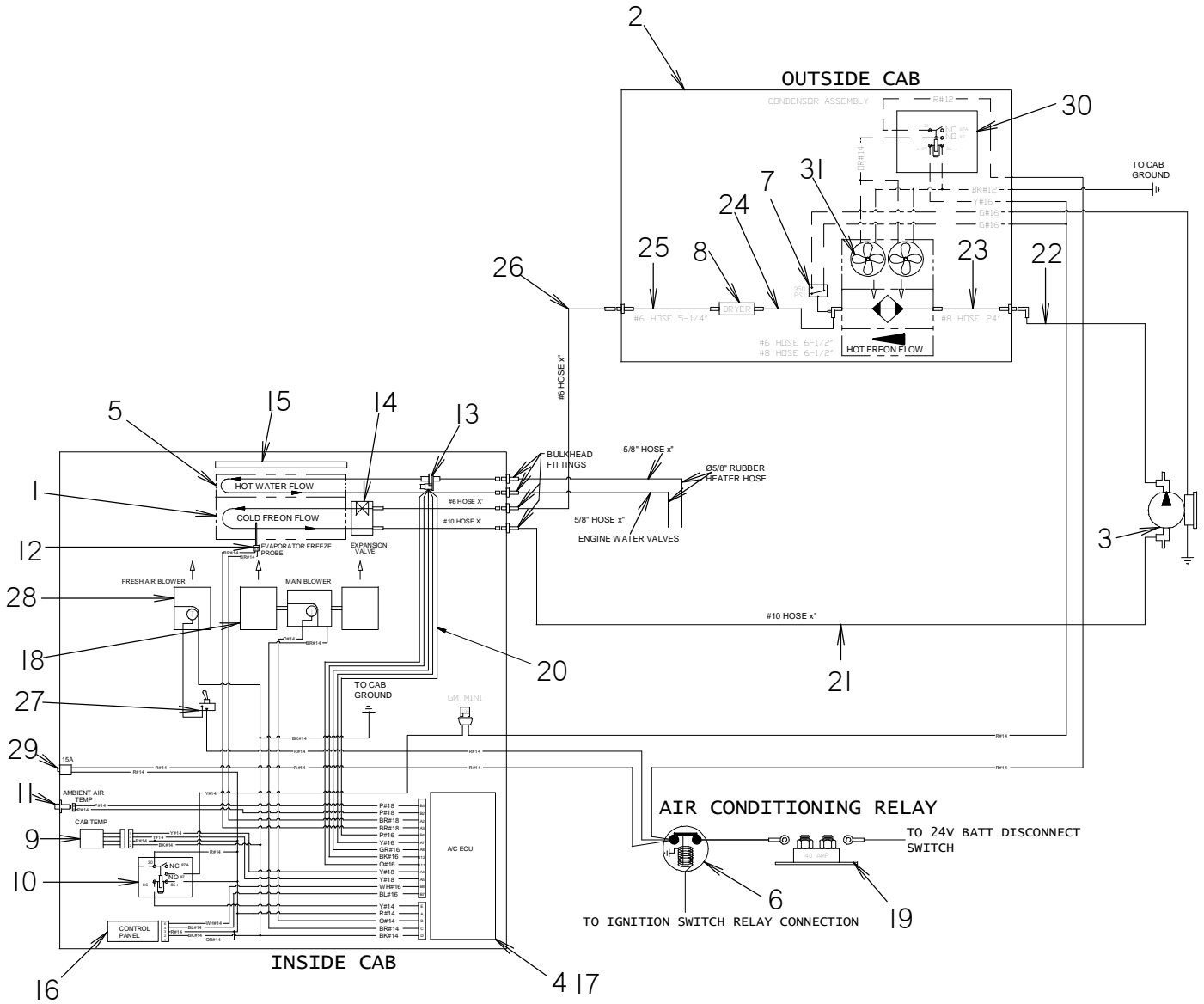
FOOTNOTES:

NOTE:

REF. 285-2210-202

A/C SYSTEM SCHEMATIC

HT220
BEGINS WITH S/N CMWHT220J80000012



A/C SYSTEM SCHEMATIC

HT220

BEGINS WITH S/N CMWHT220J80000012

REF PART NO. NUMBER	QTY	DESCRIPTION	REMARKS
1.		TST00-6600-973 - EVAPORATOR	
2.		TST00-6622-002 - CONDENSOR	
3.		TST00-6600-946 - COMPRESSOR ASSEMBLY	
4.		TST00-6600-984 - ELECTRONIC CONTROL, A/C	
5.		TST00-6600-974 - HEATER COIL	
6.		TST00-8400-043 - SOLEMOIND RELAY, 24V	
7.		TST00-6600-982 - PRESSURE SWITCH, BINARY	
8.		TST00-6622-007 - RECEIVER/DRIER	
9.		TST00-6622-021 - CAB TEMPERATURE SENSOR	
10.		TST00-6622-025 - RELAY, A/C CLUTCH	
11.		TST00-6622-020 - AMBIENT AIR TEMP SENSOR	
12.		TST00-6622-019 - EVAPORATOR FREEZE PROBE	
13.		TST00-6622-022 - ELECTRONIC WATER VALVE	
14.		TST00-6000-977 - EXPANSION VALVE	
15.		TST00-6622-014 - AIR FILTER	
16.		TST00-6622-023 - CONTROL PANEL	
17.		TST00-6622-018 - ECU MODULE	
18.		TST00-6600-975 - BLOWER FAN ASSM'Y, 24V	
19.		TST00-8400-080 - CIRCUIT BREAKER, 40 AMP	
20.		TST00-6622-024 - WIRE HARNESS ASSM'Y	
21.		TS6622-001 - HOSE ASSEMBLY, #10-SOLD PER FT.	
22.		TS6622-002 - HOSE ASSEMBLY, #8-SOLD PER FT.	
23.		TS6622-003 - HOSE ASSEMBLY, #8-SOLD PER IN.	
24.		TS625-6622-004 - HOSE ASSEMBLY, #8	USE 6-1/2"
25.		TS625-6622-005 - HOSE ASSEMBLY, #6	USE 5-1/4"
26.		TS6622-004 - HOSE ASSEMBLY, #6	USE 4 FEET
27.		TST00-8400-063 - SWITCH, ON-OFF	
28.		TST00-6600-976 - SECONDARY BLOWER	
29.		TST00-6622-026 - MANUAL RESET BREAKER, 15 AMP	
30.		TST00-6622-009 - RELAY, 24V	
31.		TST00-6622-008 - FAN, 24V, CONDENSOR	

NOT SHOWN:

FOOTNOTES:

NOTE:

TESMEC REF: 285-6622-000

MISCELLANEOUS

SAE Bolt and Nut Torque Value Chart

Grade 5: UNC or UNF Thread

Size	Hex nut, or bolt tapped into hex nut, or d&t hole		Hex top deformed locknut		Flange nut, locknut, or bolt tapped into flange nut or d&t* hole	
	ft•lb	N•m	ft•lb	N•m	ft•lb	N•m
1/4	12	16	8	11	20	27
5/16	25	34	15	20	45	60
3/8	40	54	25	34	75	100
7/16	65	90	40	55	125	170
1/2	100	135	60	80	190	260
9/16	150	200	90	125	270	370
5/8	200	270	120	165	370	500
3/4	350	475	210	285	650	880
7/8	560	760	340	460	1250	1425
1	840	1140	500	680	1580	2145
1-1/8	1030	1400	320	840	1950	3645
1-1/4	1460	1980	880	1195	2760	3475

Grade 8: UNC or UNF Thread

Size	Hex nut, or bolt tapped into hex nut, or d&t hole		Hex top deformed locknut		Flange nut, locknut, or bolt tapped into flange nut or d&t* hole	
	ft•lb	N•m	ft•lb	N•m	ft•lb	N•m
1/4	14	19	10	14	24	33
5/16	30	40	18	25	50	70
3/8	55	73	35	50	90	125
7/16	85	115	50	70	140	190
1/2	130	175	80	110	220	300
9/16	190	260	110	150	310	420
5/8	260	355	160	245	430	585
3/4	450	610	270	365	750	1015
7/8	730	990	440	600	1210	1640
1	1090	1480	650	880	1320	2465
1-1/8	1550	2100	930	1260	2580	3500
1-1/4	2180	2955	1310	1780	3640	4935

*drilled and tapped

Metric Bolt and Cap Screw Torque Values

Size	Class 4.8				Class 8.8 and 9.8				Class 10.9				Class 12.9			
	Lubricated		Dry		Lubricated		Dry		Lubricated		Dry		Lubricated		Dry	
	N•m	ft•lb	N•m	ft•lb	N•m	ft•lb	N•m	ft•lb	N•m	ft•lb	N•m	ft•lb	N•m	ft•lb	N•m	ft•lb
M6	4.8	3.5	6	4.5	9	6.5	11	8.5	13	9.5	17	12	15	11.5	19	14.5
M8	12	8.5	15	11	22	16	28	20	32	24	40	30	37	28	47	35
M10	23	17	29	21	43	32	55	40	63	47	80	60	75	55	95	70
M12	40	29	50	37	75	55	95	70	110	80	140	105	130	95	165	120
M14	63	47	80	60	120	88	150	110	175	130	225	165	205	150	260	190
M16	100	73	125	92	190	140	240	175	275	200	350	225	320	240	400	300
M18	135	100	175	125	260	195	330	250	375	275	475	350	440	325	560	410
M20	190	140	240	180	375	275	475	350	530	400	675	500	625	460	800	580
M22	260	190	330	250	510	375	650	475	725	540	925	675	850	625	1075	800
M24	330	250	425	310	650	475	825	600	925	675	1150	850	1075	800	1350	1000
M27	490	360	625	450	950	700	1200	875	1350	1000	1700	1250	1600	1150	2000	1500
M30	675	490	850	625	1600	950	1650	1200	1850	1350	2300	1700	2150	1600	2700	2000
M33	900	675	1150	850	1750	1300	2200	1650	2500	1850	3150	2350	2900	2150	3700	2750
M36	1150	850	1450	1075	2250	1650	2850	2100	3200	2350	4050	3000	3750	2750	4750	3500

Do not use these values if a different torque value or tightening procedure is given for specific application. Torque values listed are for general use only. Check tightness of fasteners periodically.

Shear bolts are designed to fail under predetermined loads. Always replace shear bolts with identical property class fasteners.

Fasteners should be replaced with the same or higher property class. If higher property class fasteners are used, these should only be tightened to strength of original.

Make sure fastener threads are clean and that the threads are properly started. This will prevent them from cross threading or galling when tightened.

Tighten plastic insert or crimped type steel locknuts to approximately 50% of dry torque indicated on chart. Apply torque to the nut - not the bolt head. Tighten toothed or serrated type locknuts to full torque value.

LUBRICATED means coated with lubricant. DRY means plain or zinc plated without any type of lubricant.

Hydraulic Cylinder Bolt Torque Chart

Bolt Size (inch)	Bolt Part No.	Cylinder Repair Kit Part No.	Torque (ft•lb)	Torque (N•m)
1/2	106-096	190-165	90-100	120-135
5/8	106-097	190-166 & 190-169	180-200	245-270
3/4	106-098	190-167 & 190-170	290-325	395-440
7/8	106-122	190-172 & 190-174	410-640	550-625
1	106-145	190-175 & 190-189	630-700	855-950
1-1/8	106-146	190-177	770-850	1045-1170

As a general rule:

- 1/2-inch bolts are used in cylinders with 1-inch rods
- 5/8-inch bolts are used in cylinders with 1 1/4-inch rods
- 3/4-inch bolts are used in cylinders with 1 1/2-inch rods
- 7/8-inch bolts are used in cylinders with 1 3/4-inch rods
- 1-inch bolts are used in cylinders with 2-inch rods (one with 1 3/4-inch)
- 1-1/8-inch bolts are used in cylinders with 2-1/4-inch rods

IMPORTANT: Do not reuse cylinder piston bolts when rebuilding a hydraulic cylinder. Each cylinder repair kit contains a new bolt. Use it. Lubricate lightly and torque to value shown on chart.

SAE & ORS Hydraulic Fitting Replacement O-Ring Chart

Fraction Size	Dash Size	SAE (Port Seal O-Ring)		ORS (Face Seal O-Ring)	
		Thread Size	O-Ring P/N	Thread Size	O-Ring P/N
1/16	1	NA	NA	NA	NA
1/8	2	5/16 - 24	NA	NA	NA
3/16	3	3/8 - 24	NA	NA	NA
1/4	4	7/16 - 20	155-760	9/16 - 18	157-037
5/16	5	1/2 - 20	NA	NA	NA
3/8	6	9/16 - 18	155-705	11/16 - 16	157-038
1/2	8	3/4 - 16	155-706	13/16 - 16	157-039
5/8	10	7/8 - 14	155-707	1 - 14	157-040
3/4	12	1-1/16 - 12	155-709	1-3/16 - 12	157-017
7/8	14	1-3/16 - 12	155-747	NA	NA
1	16	1-5/16 - 12	155-748	1-7/16 - 12	155-714
1-1/4	20	1-5/8 - 12	155-702	1-11/16 - 12	NA
1-1/2	24	1-7/8 - 12	157-001	2 - 12	NA
2	32	2-1/2 - 12	NA	NA	NA
2-1/2	40	3 - 12	NA	NA	NA
3	48	3-1/2 - 12	NA	NA	NA

Thread size indicates the diameter of the threaded area in fractions of an inch and number of threads per inch.

NA = not a current CMW part numbered o-ring, or dash size does not occur in current CMW applications

SAE = straight thread fitting that seals by sandwiching a hard o-ring between a shoulder on the male part and an angular surface at the mouth of the female port.

ORS = o-ring face seal; a type of fitting that seals by compressing a hard, captive o-ring between two flat parallel faces, one grooved for the o-ring and the other plain to act as the sealing surface

HT220

Related Publications

Component	Ass'y	P/N
Model:		
HT220 Parts Manual		053-1150
HT220..... Operators Manual		053-1130
HT220 Repair Guide (Service Manual)		N/A
HT220 Technical Supplement.....		N/A
Engine:		
Cummins... .. Parts Manual.....		N/A

Filters

Engine:		
Filter Parts Ass'y		TS36400805
Element (primary)		TS36400809
Element (secondary).....		TS36400810
Air Pre-Cleaner (4.000").....		TS36400806
Oil Filter Element (spin-on)		TS14303350
Fuel Filter Element (water trap, spin-on).....		TS14303351
Hydraulic:		
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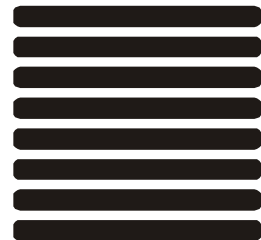
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