

SCHAT-DAVIT COMPANY LTD

USE AND MAINTENANCE INSTRUCTIONS

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CCGS "PIERRE RADISSON"

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ORDER NO : 66XLQ-1-0001/01-XLQ

SCHAT-DAVIT CO LTD JOB NO 6502-3

LIFEBOAT DAVIT TYPE SPG(L) 9500/4850
WITH ELECTRIC WINCH TYPE BE8600

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SECTION I

TECHNICAL DATA & TEST CERTIFICATES

DAVITS FITTED WITH SPRING ASSISTER

TECHNICAL DESCRIPTION & DATA

The spring assisted davits swing the combined weight of arm and boat out past the arm pivot. Gravity then takes over the swinging out and subsequent lowering of the boat.

The swinging out of the davit arms and the lowering are both controlled by a winch with a handbrake, of the 'deadman' type and also a centrifugal brake which imposes a predetermined speed of lowering.

There are a number of distinct types of Schat Gravity Davits each designed to give the maximum efficiency and to occupy the minimum of deck space under particular boat stowage conditions.

WINCHES

In Schat Winches all gearing is totally enclosed and runs in an oil bath. Brake mechanisms are completely enclosed in watertight casing. Thus, all the moving parts are protected from icing up, corrosion etc and the winch is kept in free running state under the most adverse conditions. Where the boat weight and other factors permit the winch is mounted on the davit track to give the added advantage of maximum clear deck space.

HOISTING

By fixed electric motor.

OPERATION

The operation of the Schat Gravity Davit is extremely simple, but as in handling of all heavy weights, there are precautions to be observed and crews should be trained in the procedures detailed in this booklet.

"The davits and winches are constructed in compliance with IMO 83 Chapter III.

Regulation 48 Parts 1 to 1.11 and 2 to 2.10 inclusive.

Also Regulations 22 and 28."

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TEST LOAD DATA AND PROCEDURE

1. SPECIFICATION

Davit Type : SPG(L) 9500/4850

Boat Type : TELB LIFEBOAT Size : L 8.5M x B 2.75M x D 2.35M

WB = Weight of Empty Boat + Equipment = 4835 kg

WL = Weight for Launching Boat = 9335 kg

WT = Total Davit Load (per set) = 9335 kg

2. BOAT DAVIT TESTS (PER SET)

Safe Working Load Per Davit = 9500 kg. Aft Arm = 5000 kg. Fwd Arm = 4500 kg

TEST	LOAD	CONDITION
Static	$SWL \times 2.2 = 11000 \text{ kg}$	Simulated 20° low side list + 10° trim
Hook	$\frac{WL \times 2.2}{2} =$	N/A
Lower Block & Suspension Link	$SWL \times 2.2 =$	Straight pull

3. BOAT WINCH TEST

Winch Type : BE8600

Safe Working Load = 8600 kg

WP = Maximum load on winch, pulling in (from calc. dia) = 5700 kg

TEST	LOAD	CONDITION
Static	$SWL \times 1.5 = 11700 \text{ kg}$	Straight pull
Hoisting Electric Winches	WP = 5700 kg	
Lowering Speed	$\frac{WT}{2} = 4667.5 \text{ kg}$	To be between 70/100 M/Min off barrel

SECTION II

OPERATING INSTRUCTIONS

OPERATION FOR DAVITS SERVED BY WINCH FITTED WITH FIXED ELECTRIC MOTOR

DAVITS WITH SIMPLIFIED CATAPULT RELEASE GEAR

TO LOWER

1. Ensure that the handbrake is in the full 'ON' position, that the maintenance locking bars* are not left in and that the crankhandle is not on the winch spindle otherwise injury may be caused.
2. Release the slip link between stools, Item 6 SK 657.
3. Embark all personnel.
4. Raise the brake lever by pulling on the remote wire until the brake opens.
5. Maintain hold on remote wire to continue lowering. Lowering can be halted at any stage by releasing hold on wire.

NB : Whilst lowering ensure that control wire remains inside craft.

6. The lifeboat can now be lowered directly to the water where once waterborne the lifeboat lifting hook can be operated to release the lifeboat from the davit falls. The control wire will pull thro' canopy roof as boat is manoeuvred clear of ship.

TO HOIST

1. Ensure that the handbrake is in the full 'ON' position.
2. Check limit switches to ensure that they will cut off the power supply when operated by the striker on the davit arm.
3. Close isolator switch on starter panel.
4. Press start button on starter panel.
5. Be prepared for the increase in load when the lower blocks meet the stops in the davit heads.
6. Stop the motor when the davit arms are approximately 150mm from the full inboard position and open mains isolator switch.

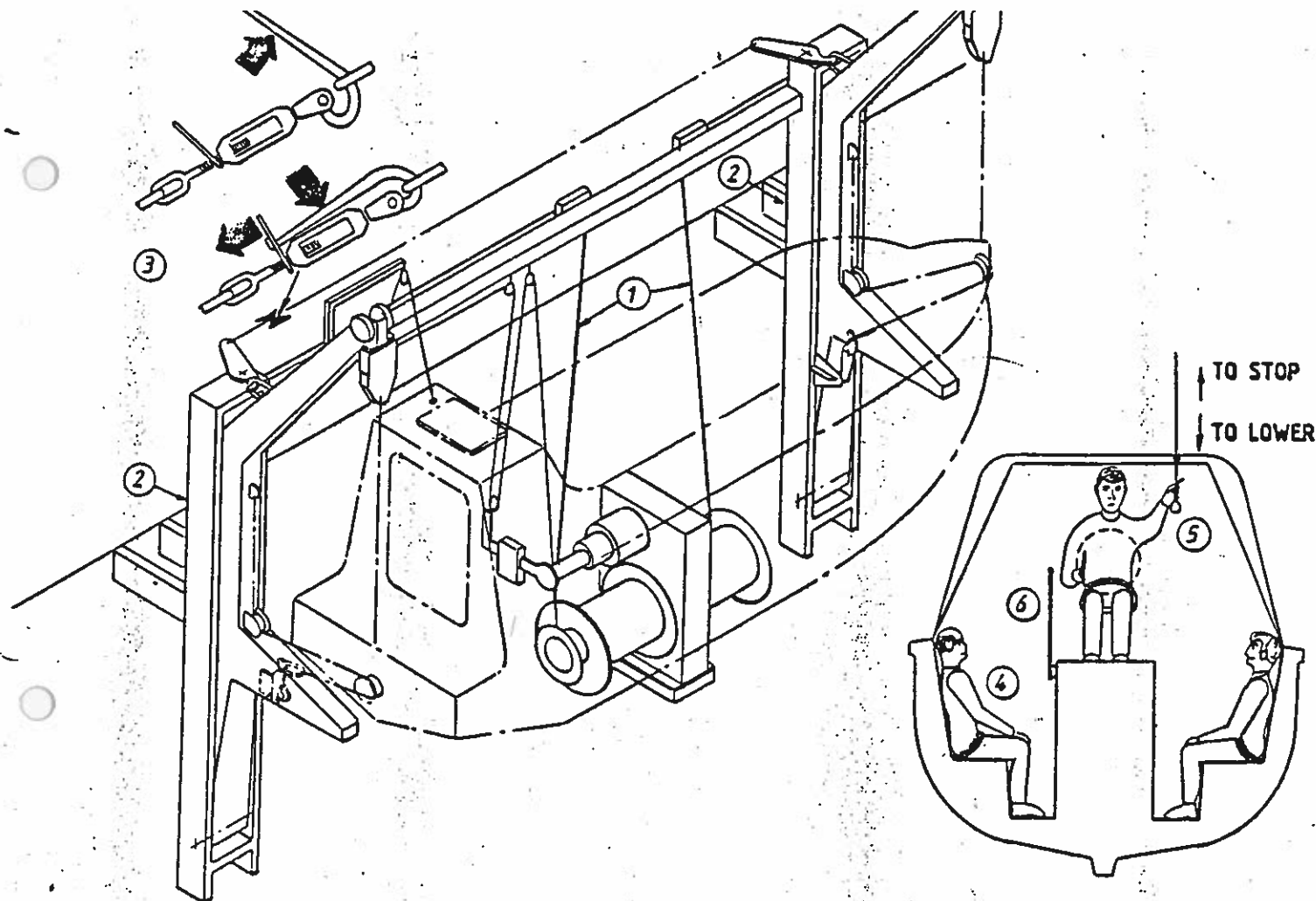
- * Maintenance locking bars are not part of davit system; these would be part of the deck maintenance crews equipment.

These bars must only be used during overhaul of the davits and winches and at no other time must be left in place, particularly when ship is at sea.

7. House the davit arms by the crankhandle on the winch.
8. Connect up the slip links between stools and fully tighten the gripe wires around boat.
9. Remove the crankhandle from the spindle.
10. When the boat is fully griped and the spanwire tightened, release the brake to take the strain off the falls, then apply it again and ensure that it is left in the full 'ON' position.

The limit switches should be adjusted to cut out the motor when the davit arms near the full inboard position. The limit switches are fitted only as a precautionary measure to prevent straining of the installation by overhoisting.

The previous instructions comply with IMO 83 Chapter III Regulations 13, 14, 15 and 16.



- ① Ensure there is no slack in falls prior to launching boat by handcranking winch in hoist direction. Remove handle after use
- ② Ensure that maintenance locking pins have not been left in place; if so remove
- ③ Release davit arm securing wire by rotating lever as shown
- ④ Ensure that all survivors are on board and properly seated. Ensure that boat covers are closed and fastened.
- ⑤ HELMSMAN pulls on brake release wire until holding brake on winch opens; maintain pull on wire and boat will continue to lower, automatically releasing boat grips and then continuing under control of centrifugal brakes until waterborne
NOTE lowering may be stopped by releasing pull on wire then restarted by again pulling on wire. At no time during lowering must the wire be allowed to leave the lifeboat
- ⑥ HELMSMAN operates hook release in boat and maneuvers boat clear of ship

IMO 83 CHAPTER III REGULATION 51

TRAINING MANUAL CONCERNING OPERATION OF GRAVITY DAVITS

51.3 BOARDING, LAUNCHING AND CLEARING THE SURVIVAL CRAFT AND RESCUE BOATS.

51.4 METHOD OF LAUNCHING FROM WITHIN THE SURVIVAL CRAFT.

The partially enclosed lifeboats are boarded with the boat in fully stowed position from a platform which locates between the davits and the muster station.

In order to pass into the boat the span wire passing across the entrance must be released via the sliplink shown on the operation poster.

When all possible survivors are properly seated and secured in the craft the helmsman will start the descent by pulling on the winch remote control wire which passes through the canopy roof adjacent to the helmsman's position. He will maintain the pull on the wire until the boat is waterborne unless circumstances demand that the descent be stopped. This can be done by releasing his hold on the wire, but under no circumstances must he allow the wire to pass out of the boat and beyond his reach. To restart the descent simply pull on the wire again.

Once waterborne the boat is released from the falls. For this operation consult the boat manufacturer's instructions.

51.13 RECOVERY OF SURVIVAL CRAFT INCLUDING STOWAGE AND SECURING.

The davit is designed to recover the empty boat loaded with its full equipment together with two crew from the water straight into the stowed position during favourable weather conditions, but this operation must be carried out under the supervision of experienced seamen.

The hoisting and stowage procedure should be followed exactly as stated in Section II of the Instruction Manual.

SECTION III

GENERAL MAINTENANCE

GENERAL INSPECTION PROGRAMME

WEEKLY

Check gripe wires for slackness, tighten if necessary.

SIX WEEKLY

Grease all lubrication points where necessary.

Check oil level in winch.

Check condition of wires for damage.

Check operation of deadman brake on winch, first ensure gripes fully tightened, then check operation by remote wire in lifeboat.

ANNUALLY

Check brake linings on winch as described in winch maintenance section.

Check all rotating parts, gripe lever etc for free movement.

NOTE

When re-reeving or overhauling winch or davits the slip links should be lashed and the overhaul safety bars inserted.

Trackways must not be used as convenient places for storing loose gear, nor must projecting parts of the equipment be used for securing lines etc.

LUBRICATION

Gravity davits are mechanical devices. Like other machines if they are to retain their efficiency they must be regularly lubricated and inspected. All grease points on davits and winch, as shown on the lubrication diagram, should be lubricated by a grease gun not less frequently than every six weeks. To facilitate location of grease points, it is an advantage to paint a small ring in contrasting colour around each. The winch gearcase oil level should be frequently checked. Other points calling for special attention are mentioned later.

Suitable grades of recommended lubricants are listed in Section VIII.

PAINTING

Careless painting is the most frequent source of trouble with gravity davits.

WHEN PAINTING IT IS ESSENTIAL TO ENSURE THAT NO PAINT IS APPLIED TO LUBRICATING POINTS, OR TO BEARINGS OR ANY MOVING PARTS IN SUCH A WAY AS TO IMPEDE THEIR FREE MOVEMENT.

DAVITS

1. All sheaves and rollers or pivots must be thoroughly greased and must rotate freely.
2. Grips and levers should move freely in a complete circle when the arms are in the outboard position.
3. Turnbuckles, slip hooks, lower block sheaves and swivels and all small moving parts must be free from paint and well greased.
4. Trackways of roller type davits should have one coat of paint only as delivered and kept greased with a non-drip grease.

The above instructions comply with IMO 83 Chapter III Regulation 19.

SECTION IV

FALLS & WIRES

FALLS & WIRES

BOAT NOS 1 & 2

1. Falls are reeved as shown on Drawing D407928 Sheet 1. A stretching screw is provided for levelling of falls should they stretch unevenly or coil incorrectly.

See SK 604/6502 for assembly.

2. Falls and wires must be inspected periodically to check condition. They will give longer service if changed end to end before showing signs of wear. To save unnecessary wear they should be kept slackened off slightly when the boat is stowed and griped.
3. Falls should be kept greased. White lead or paint must not be used as this chokes the sheaves bearings.
4. Falls must be neatly coiled on the winch barrel. Turns must not override one another, otherwise the boat will come home unevenly.
5. When renewing falls the correct size, construction, breaking strain and length should be ascertained.
6. If boats are light alloy or glass fibre, gripe wires should be served with proofed canvas or plastic where in contact with the hull otherwise the hull will corrode or wear.
7. Gripe release wires must be kept under tension between the levers.

NOTE

IMO Chapter III Regulation 19 Maintenance of Falls states "Falls used in launching shall be turned end for end at intervals of not more than 30 months and be renewed when necessary due to deterioration of the falls or at intervals of not more than 5 years, whichever is the earlier".

The instructions comply with IMO 83 Chapter III Regulation 19.

SECTION V

FAULT FINDING

INSTRUCTIONS FOR LOGICAL TRACING OF FAULTS

DAVIT DOES NOT RUN OUT WHEN BRAKE LEVER IS LIFTED

1. Check that maintenance locking bars* are not in place and preventing davit moving out.
2. Check that gripe wires have been released.
3. If davit is still reluctant to run out, insert safety locking bars and check free running of winch in lowering direction. Normally a pull of approximately 250 lbs is sufficient when applied to the falls with brake lever lifted.
4. If winch is free running, davit must be stuck fast with paint on sheave pins and trackway.

These must be free of paint and greased.

5. If davits have sustained any damage by weather, cargo handling etc misalignment of various points may be the cause. In this case davit manufacturer should be contacted.

BOAT LOWERS TOO QUICKLY

1. Dismantle centrifugal brake housing and check that there is no grease or oil on Ferodo brake shoes.

Clean if necessary or renew. (See maintenance section for details).

2. Check that Ferodo is not worn down to shoe material. Renew if necessary.

BOAT LOWERS TOO SLOWLY

1. Check free running of sheaves and winch.

- * Maintenance locking bars are not part of davit system. These would be part of the deck maintenance crews equipment.

These bars must only be used during overhaul of the davits and winches and at no other time must they be left in position, particularly when ship is at sea.

BRAKE OR CLUTCH FAILS TO HOLD BOAT

To check clutch :

1. Rotate hand pay-off wheel (Shaft 5 Drawing D406761) in lowering direction. With brake lever lifted this is possible but with lever in down position the sprag clutch should resist movement in lowering direction. Check clutch. If inner or outer race is badly indented renew clutch.
2. Check Ferodo plate brake (Item P D406700D) for grease or oil. Clean or renew. Check for wear, renew if necessary.

WINCH NOT FREE RUNNING

1. Check that oil in gearcase is of correct viscosity and level.
2. Check gear teeth for breakages and gearcase for foreign matter.
3. Check bearings for collapse and bearings and shafts for rust and corrosion. (This should not occur with correct periodic maintenance).
4. Check that sprag clutch cage has not broken and jammed clutch mechanism. (This is a very unlikely occurrence).

SECTION VI

WINCH MAINTENANCE

WINCH MAINTENANCE INSTRUCTIONS BE8600

REFERENCE DRAWINGS :

SECTIONAL DRAWINGS D406761 PART I
SECTIONAL DRAWING D407932 PART II

GENERAL ARRANGEMENT MK 'XL' M902473 - BOAT NO 1

BRAKE UNIT D406700D

LUBRICATION

The gearcase must be kept filled to correct level with non-freezing oil, see Lubrication Chart for specified type. The oil level must be checked once every six weeks by removing the oil level plug. If oil level is below this hole then extra oil must be added via the oil filler plug situated in the top cover until the correct level is obtained. Ensure oil plugs are fully tightened after use.

Grease nipples should not be painted and should preferably be ringed round in red paint. Two nipples are situated in the threaded sleeve outer (Item J on D406700D). These nipples should receive a single pump of grease once every six weeks. Excessive greasing is not necessary on the brake unit as an excess of grease can eventually force its way past seal Item 9 on Drg D406700D and contaminate the Ferodo linings in the brake housing.

The roller clutch is assembled and filled with oil in the factory. Level may be checked by removing the lower of the two plugs (Item 24 D406700D). If oil is required remove top plug, ensure there is no ingress of foreign matter during filling.

BRAKE LININGS

The brake lining is secured to the brake carrier (Item D D406700D) by 12 M6 countersunk screws which have the screw heads sunk below the surface of the lining. The lining should be inspected annually and if lining has been worn down to within 1mm of the screw heads, it should be replaced. Never let the lining wear down to the screw heads as this will cause damage to the steel plate half of the clutch with subsequent rapid wear of the Ferodo lining.

GENERAL NOTES

1. When in good order the winch should overrun after the boat is waterborne so as to give slack; if not check free running of bearings etc.
2. When lowering, the centrifugal brake housing will heat up owing to the action of the governing brake. So long as this is not accompanied by an increase in the controlled lowering speed, this may be ignored. During tests or drill the brake should be allowed to cool before lowering again.
3. If winch covers are removed for inspection, water tightness must be ensured on reassembly.
4. Ensure that the weighted 'deadman' brake lever always engages the brake under its own momentum.

SECTION VII

ELECTRICAL EQUIPMENT

SCHAT-DAVIT COMPANY LTD

HOISTING EQUIPMENT

BOAT WINCH - BOAT NO 1

1) FIXED ELECTRIC MOTOR

MAKERS	:	
FRAME SIZE	:	XVF 160 M04
VOLTAGE	:	460 - FULL LOAD AMPS
PHASE/CYCLE	:	3/60
KW/RPM	:	10/1800
ENCLOSURE	:	IP56 FANLESS
WINDING	:	HT/LC SQUIRREL CAGE
HEATER	:	120V SINGLE PHASE

2) STARTER

MAKERS	:	ACME ELECTRICAL MFG CO LTD
TYPE	:	IP44
VOLTAGE	:	440/3/60
HEATER	:	120V SINGLE PHASE
PUSHBUTTON	:	REMOTE TWO POINT DECK WATERTIGHT IP66

SECTION VIII

LUBRICATION CHART

EQUIPMENT	SHELL	ESSO	B.P.	TOTAL	CHEVRON	MOBIL	TEXACO	GULF	CASTROL	LORCO	ROCOL	ELF-ANTAR
WINCHES GEARBOXES	OMALA 100	SPARTAN (EP68)	ENERGOL GR-XP 150	CARTER EP 110	GEAR COMP'D 150	GEAR 629 SHC 629	MEROPA 150	E.P. HD 150	ALPHA ZN 150	HT 100		EPONA Z 100 OR 68
	MELINA 30											
GREASE POINTS DAVITS-WINCH ELECT/MOTORS DAVIT, TRACKS	ALVANIA GREASE R2 / R3 OR EP2	BEACON 3	ENER - GREASE MM=EP2	MULTIS SPECIAL 3	DURALITH GREASE EP2	MOBILUX 2 OR EP2	MULTI FAK EP2	CROWN GREASE Nº2	SPHEREO AP3	GREASE LG 23	ROCOL BG 151	MULTI SERVICE.
	CARDIUM COMP'D OR FLUID D											
WIRE ROPES		SURETT FLUID N 5K	ENERGOL WRP	OSYRIS TP4A	PINION GREASE MS 250 TCB	MOBIL -TAC A	CRATER 1X	LUBCOTE Nº 1	RUSTILO 553	OPEN GEAR COMP'D	ROCOL - R0105 OR WIRE ROPE SPRAY	ENGREN - AGE 1401
ELECTRICAL OVERLOAD RELAY DASH POT	DIALA OIL B	NUTO H15	ENERGOL JS-A	ISOVOL - TINE	E.P. HYDRAULIC- LIC OIL 5	D.T.E. 11	TRANS- FORMER OIL	MECH- ANISM LP 15	DASHPOT OIL	TRANS FORMER OIL	TRANSFO- RMATEUR 40	
THICKENING OF DASH POT OIL IF NECSESARY	TALPA OIL 40	NUTO H68	ENERGOL HLP68 BARTRAN HV68	CORTIS 100	MARINE OIL R&O 65	D.T.E. 3 OR D.T.E. 18	DORO AR 30	VERITAS 30	MARINE HEAVY	HT 100	MISOLA H100	
HYDRAULIC SYSTEMS	TELLUS 37	NUTO H 32	ENERGOL HLP 32 BARTRAN HV 32	AZOLLA VG 32	E.P. HYD 32	D.T.E 13 OR D.T.E 24 SHC 524	RANDO HD 32	MECH- ANISM LP 32	HYSPIN AWS 32	HT 32	VISG A 32	
SPRAG-CLUTCHES	ALVANIA GREASE R2/R3	BEACON 3	ENER - GREASE MM-EP2	MULTIS- SPECIAL 3	DURALITH GREASE EP2	MOBILUX 2 MOBILPLEX 47	MULTI- FAK EP2	CROWN GREASE Nº2	SPHEREO AP2	GREASE LG 23	ROCOL MG	MULTI- SERVICE
STIEBER ROLLER CLUTCHES	TELLUS 10 OR C10	NUTO H10	ENERGOL HLP-10 ENERGOL SHF-LT15	AZOLLA 10	EP HYDRAULIC 10	VELOCITE Nº6 D.T.E. 21	RANDO 10 HD A-10		HYSPIN VG-10 HYSPIN AWS-10			

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**SCHAT-DAVIT
COMPANY**

RECOMMENDED LUBRICANTS
EQUIVALENT GRADES BY OTHER REPUTABLE
MAKERS ARE EQUALLY SUITABLE

SECTION IX

SPARES LIST

BE8600 WINCH BRAKE UNIT						
DESCRIPTION	DETAIL N ^o	No off per Winch				
SECTIONAL ARRANGEMENT	D406700D					
FREEWHEEL CLUTCH TYPE AL55	Item 1	1				
BALL BEARING 6021	Item 2	1				
THRUST BEARING 51120	Item 3	1				
THRUST BEARING 51306	Item 4	1				
THRUST BEARING 51105	Item 5	1				
THRUST/NEEDLE BEARING NKIA 5910	Item 6	1				
NEEDLE BEARING NK 50/25	Item 7	1				
OIL SEAL 150 180 15	Item 8	1				
OIL SEAL 85 120 12	Item 9	1				
OIL SEAL 75 100 10	Item 10	2				
DUST SEAL VA 0060	Item 11	2				
CIRCLIP 105MM EXT	Item 12	1				
OIL SEAL 50 72 8	Item 13	1				
CIRCLIP 62MM INT	Item 14	1				
PLAIN BEARING MB 2815 DU	Item 33	2				
'O' RING RM 1145-30	Item 35	1				
DISC BRAKE LINING + SCREWS - N1000	Item P	1				
CENTRIFUGAL BRAKE LINING + SCREWS - N1001	Item S	6				
BRAKE SHOE SPRING. - N1002	Item T	6				
GREASE NIPPLE M10 x 1 'TAT'	Item 32	2				

SECTION X

DRAWING LIST

<u>DRAWING NO</u>	<u>DESCRIPTION</u>
D407928 SHEET 1	GENERAL ARRANGEMENT
D407928 SHEET 2	FOUNDATIONS
D406758	WINCH REMOTE CONTROL
S710267	LIMIT SWITCH ARRANGEMENT
S709758A	LOWER BLOCK
SK 604/6502	FALLS ASSEMBLY
SK 603	BOAT GRIPE WIRE - AFT
SK 696	BOAT GRIPE WEBBING - FWD
SK 657	ARM GRIPES
M900867A	SUSPENSION CHAIN
M902473	WINCH GENERAL ARRANGEMENT - BOAT NO 1
D407932	WINCH SECTIONAL ARRANGEMENT - PART II
D406761	WINCH SECTIONAL ARRANGEMENT - PART I
D406700D	BRAKE SECTIONAL ARRANGEMENT
S709841	MOUNTING OF BRAKE SHOES/CLUTCH 'X' TYPE
S709842	MOUNTING OF BRAKE SHOES/CLUTCH 'Y' TYPE
D406757	SPRING ASSISTER
S710340	BRAKE DISMANTLING INSTRUCTIONS
SK 10957	WIRING DIAGRAM
SK 5383 FR 2	STARTER OUTLINE
SK 11324	PUSHBUTTON STATION
S710267	LIMIT SWITCH ARRANGEMENT